

The Boston Medical and Surgical Journal

TABLE OF CONTENTS

September 15, 1921

ORIGINAL ARTICLES		CURRENT LITERATURE DEPARTMENT	
LEGISLATIVE ASPECTS OF VACCINATION. By Samuel B. Woodward, M.D., Worcester, Mass.	307	THE PHYSIOLOGY AND PHARMACOLOGY OF THE MAMMARY GLANDS.	329
CANCER. By John E. Tolboi, M.D., Worcester, Mass.	310	TUMORS OF THE BODY CHEST WALL.	329
THE ETIOLOGY OF HYPERTENS. By Max Bag, M.D., F.A.C.P., Worcester, Mass.	313	PROGNOSIS OF PULMONARY TUBERCULOSIS.	329
REPORT OF TWO CASES OF BLASTOMYXOMA. By Wilford Hayden Howe, M.D., Detroit, Mich., and Philip F. Morse, M.D., Detroit, Mich.	315	REPORT ON THE SCHICK TEST AND TOXIN-ANTITOXIN IMMUNIZATION AT THE CHILDREN'S HOME, WINDSOR.	329
"SCHEMICAL ASPECTS OF ARTERIAL TUBERCULOSIS IN CHILDREN." By W. E. Ladd, M.D., F.A.C.S., Boston.	317	CARBON MONOXIDE POISONING WITH GANGRENE.	329
THE VALUE OF QUANTITATIVE PRESENTRY IN THE STUDY OF POST-EPITHEMIAL EPITHEMIAL SIBIRIUS CAUSING VISUAL DEFECTS. By Clifford B. Walker, M.D., Springfield, Mass.	321	SOME ACCOUNT OF THE RESPONSIBILITY OF INTENSIVE TREATMENT WITH REGARD TO THE INCIDENCE OF EARLY NEUROPSYCHIAS.	330
CLINICAL DEPARTMENT		SYNTHESIS OF THE HEART.	330
TREATMENT OF FRACTURE OF NECK OF SCAPULA. By Frederic J. Cotton, M.D., Boston, and W. J. Brickley, M.D., Boston.	326	FRACTURE OF THE SKULL.	330
BOOK REVIEWS		EDITORIALS	
Public Health and Hygiene. Edited by William Hallock Park, M.D.	327	OPENING OF THE PUBLIC SCHOOLS.	331
Surgery: Its Principles and Practice. By Astley Paston Cooper Ashhurst, A.B., M.D.	328	BOSTON UNIVERSITY SCHOOL OF MEDICINE IN 1921. By John F. Sutherland, M.D.	331
Pathological Anatomy of Pneumonia Associated with Influenza. By W. G. MacCallum.	328	THE USE OF TOBACCO.	333
Lymphosarcoma. Lymphatic Leukemia. Leucosarcoma. Hodgkin's Disease. By L. T. Webster.	328	A NEW PUBLICATION.	333
		GROUP PRACTICE.	334
		MEDICAL NOTES.	334
		CORRESPONDENCE	
		CRITICISM OF THE OFFICERS OF THE SOCIETY. J. G. Murphy.	336
		MUTUAL INSURANCE. Dr. M. J. Konston.	336
		MISCELLANY	
		THE NEW ENGLAND MEDICAL SOCIETY.	335

Original Articles.

LEGISLATIVE ASPECTS OF VACCINATION.*

BY SAMUEL B. WOODWARD, M.D., WORCESTER.

IN a moment of expansion, the honored President of this Society once wrote me a letter in which he stated that should a misguided public ever erect a statue to my memory, I ought, for my sins, to be portrayed with a bistoury in one hand and a vaccine point in the other.

Few in this audience, barring Dr. Worcester, myself and some other ancients, probably ever saw a bistoury, under that name, and the Century Dictionary, with its latitudinous definition of: "A small, narrow, surgical knife, with a straight, convex, or concave edge and a sharp or blunt point, used for making incisions, and other purposes," does not present that clear-cut description which scientific accuracy requires, but the vaccine point you do know, and you also know that by the use of it, or its equivalent, smallpox is, has been, and will be kept at bay, and that the neglect of vaccination in a community, for any length of time, means disaster.

But there are, here in Massachusetts, as well as in other parts of the country, a number of

misguided individuals who, oblivious of the facts in the case, regardless of the history of epidemics, unconvinced and unconvinced by argument and blind to the best interests of themselves and their children, project, year after year, into the legislature, a bill to repeal the compulsory public school vaccination act, occasionally advocating in addition, the passage of other bills which, if enacted into law, would entirely prevent the use of small-pox vaccine throughout the Commonwealth.

The Christian Scientist, who objects to any medication, the extreme individualist who objects to any compulsory measures whatever that affect his so-called right to be a nuisance or a menace to the community (although he would, of course, not put it in just those words), the man with the mind attuned to that of the individual whose recently prepared bill would prevent physicians from serving on boards of health, is lined up with those persons who honestly believe that vaccination is a dangerous thing as well as a useless procedure, that death or disease follow in its wake and that never in the history of the world did it, does it, or will it have any influence whatever on the spread of smallpox; that it is not a protection against its occurrence, or a modifier of its severity.

I am loath to assume that among the objectors to a procedure recognized and accepted by all civilized peoples, there are any who are influenced by other motives than those I have

* Read at the Annual Meeting of the Massachusetts Medical Society, June 1, 1921.

mentioned, but so much apparently manufactured evidence and so many erroneous statements of actual fact came to my attention during the three years I, as Chairman of the Committee on State and National Legislation of the Massachusetts Medical Society, was on the firing line, that it was often difficult to avoid an attack upon motives, instead of confining oneself to the legitimate task of making clear to legislators the value of vaccination *per se*. Nevertheless and notwithstanding, I am fully convinced that real fear of results, combined with an equally real ignorance of what smallpox means (for few, if any, of these people ever saw a case), warps the judgment of the majority, causes them to accept unconfirmed statements, and is the compelling force which yearly drives them forward in their efforts (so far, thank Heaven, ineffectual) to break down our vaccination laws.

That obliquity of vision and curiously biased use of the reasoning powers which convince the confirmed antivaccinationist that the only *post hoc* of vaccination which is not also *propter hoc*, is immunity from smallpox, lead him to joyfully utilize as ammunition every disease epidemic of whatever nature, claiming its relationship to the antecedent vaccination, no matter how long a period of time intervened between cause and its assumed effect.

Early we hear of a new calamity, fathered and mothered by the pernicious practice of vaccination.

The epidemic of acute anterior poliomyelitis—infantile paralysis—was utilized to the limit, case after case being cited of children who had been vaccinated and who afterwards, sometimes months afterwards, died of this disease. Vaccination being rather universal, it was naturally difficult to find a child who did not fill the required conditions. Another year, influenza was with us in a virulent form and we speedily learned that the vitality of the human race had been so reduced by one hundred years or more of continued vaccination, that it was unable to withstand this pan-epidemic. But one of the greatest discoveries of the age was, undoubtedly, made by a white-haired physician, not a member of this Society, who at a hearing before the Legislative Committee on Public Health, gave at some length the history of a case with obscure symptoms, for which he and others had sought in vain the cause, until he discovered that his patient had been vaccinated in his childhood, whereupon he promptly made use of what he called "antivaccination remedies," and cured him.

To hear that thousands of physicians are opposed to the procedure, to hear that the homeopathic physicians are all opposed to it, to hear that I, personally, do not dare to say what I think about it (why I was afraid was never stated), to hear that physicians in general

supported and practised vaccination simply for what they could get out of it (the pecuniary recompense for performing this surgical operation, as it was often called), would have no effect upon a medical body but might and did naturally affect many a legislator, who usually knew little, and perhaps cared less, about a matter which he considered, and very properly, a medical question and a health measure.

It may, and probably does, seem to those of you who have had nothing to do with legislative matters, that the statement that vaccination is a protection against smallpox and that universal vaccination continued for a period of years would probably eliminate it from the world forever, is so obvious in the light of history that but little more effort would be needed to drive the fact home than would be required to show that the earth was not flat or that the moon was not made of green cheese. This is, however, far from being the case and one must, in addition, remember that laws are sometimes advocated or opposed for reasons that do not appear on the surface.

An experience of some fourteen years with legislators and legislative committees, while serving on one of the unpaid boards of the State, had, I thought, prepared me for almost anything, but when the leader of the antivaccinationists in the House, in response to the inquiry, "Now, do you mean to tell me you do not believe in vaccination?" answered, "Sure, I do. I am vaccinated, my wife is vaccinated, and all my children are vaccinated. How often ought one to be vaccinated to be protected?" I almost fell down the steps of the State House, on which we were standing. "For goodness sake," said I, "if you feel that way, why in the name of all that is wonderful, do you act as you do about this legislation?" "Why," said he, as seriously as if there were nothing unusual or peculiar about it, "I have, down in Spring Brook, a lot of constituents who do not wish school vaccination and I cannot get elected unless I agree to oppose it."

What effect would argument or statistics have on a fellow like that, ready to barter the health of the community for his own petty ambition?

The so-called vaccination bills are, in common with most health bills, referred to the Committee on Public Health, and the composition of this Committee is of the utmost importance, for the legislature is naturally prone to follow its recommendations. It is, therefore, important to get in touch with the President of the Senate and the Speaker of the House, in whose hands the appointments to this, as to every committee, lie, and this, during my three years as your President, I always did, finding understanding and coöperation in my endeavor to have men with medically sane minds, the majority appointees. The reason for this co-

operation was not, however, always a desire for the improvement of health conditions in the Commonwealth.

In 1919, a gentleman who afterwards became rather conspicuous as a candidate for State Treasurer, on account of the similarity of his name with that of the present occupant of the office, was the ranking Senator on the Committee of Public Health. Unsuccessful efforts had been made by your legislative committee to prevent his reelection. He was a pronounced anti-vaccinationist and *anti* all good health measures, yet courtesy would have made him chairman of his committee. The President of the Senate, however, told me that he would appoint as chairman, any Senator endorsed by the physicians of the State, and he kept his word.

My successor in office, Dr. Worcester, was much chagrined a year later when he failed to obtain what he desired from the same gentleman, and may be interested to know why I may have succeeded while he failed. The Senator in question was connected with a Boston bank. I am connected with a bank in Worcester and went to him provided with a letter of introduction from the President of one of the largest banks in Boston.

Country banks maintain deposits in city banks, and some two months after our interview, the President of the Massachusetts Senate appeared in Worcester and suggested that I should use his bank as my bank of deposit.

I believe Dr. Worcester is not a banker. It may be unnecessary to say that no change in financial arrangements was made by me.

But there are members of the legislature who are greatly interested in public health and who give, or at any rate gave me, good advice and abundant coöperation. It may be, and probably is, invidious to mention names in this connection, but if one wishes to find a legislator who from the time of his first election has consistently and always supported your legislative committee, he need not wander far from the chair of the present Speaker of the House of Representatives.

The fight to maintain our vaccination laws and to improve them did not begin with me, nor will it end with Dr. Worcester, nor again will eternal vigilance ever, so far as we can now see, become unnecessary; for with unceasing energy the misguided individuals who wish to pull down the fence will come year after year into the fray, trying as best they may to overturn our protection and let loose upon us once more that scourge of mankind, smallpox.

The method of attack varies from year to year, and we must be constantly on the *qui vive*, prepared to meet tactics which are neither to be despised nor ignored.

In the course of one session, fourteen separate leaflets, printed on colored paper, were mailed at intervals of about a week to each

and every member of the General Court. On each slip thus distributed was given the supposed history of the injury caused by vaccination in a specific case, the name of the patient being suppressed, but the name of the town given. As these slips, as fast as they were received, were sent to me by a member of the Legislature, it was an easy matter to remail them to physicians in the localities named, obtain true histories, which in no single instance agreed with the original statement, and when they were presented *en masse* at a hearing, read the refutations from No. 1 to No. 14, to the manifest confusion of our opponents, who naturally did not know that they had fallen into our hands.

Without coöperation in the legislative body, this would, of course, have been impossible, and as the conditions attributed to vaccination ranged from septic infection to convulsions and death it is easy to see that unrefuted they must have had their influence on the lay mind.

Another year the House was flooded, forty-eight hours before the time set for a vote on the bill, with an impassioned appeal signed by a lady, at that time prominent in the public eye, an orator and an earnest advocate of the enfranchisement of women. This circular called on legislators "not to be the slaves of the medical trust, but to remember that they were there to represent all the people, and not a small section of the community only." This section being, of course, the physicians of the State and those "few" people who considered vaccination at least a safe, if not a wholesome practice.

Some rather expeditious work furnished an answer which lay on the legislators' desks on the morning the vote was taken.

The argument that public school vaccination is class legislation, because children in the private schools of the State are not subject to its provisions, has not been so often brought forward since the introduction, four years ago, and yearly since, of a bill to extend the present law to cover the private schools.

This bill has twice passed one House, but although no private school has appeared in opposition and the measure has the support of the heads of practically every college and preparatory school in the State and is approved of by the Cardinal Archbishop of Boston and by the Roman Catholic Bishops of Springfield and Fall River, it has not as yet been enacted into law.

The side issues are many: Attacks on the character of vaccine used in the State; attacks on the State Laboratories, in one instance supported by the statement of an old soldier who, being a war veteran, was of course a qualified critic; attacks on the veracity of the statements of physicians; the introduction of bills to prevent the use of any vaccine which is not

microscopically germ free, a manifest impossibility, and other attempts to camouflage the real object of the antivaccinationists' endeavors, the suppression of vaccination, have been freely employed. And what has been the result? As far as I remember, in 1915 they won in the lower House by 135 to 127, but Dr. Bigelow of Framingham was in the Senate, the Senators listened to him, and the bill failed. In 1916 they had 40 votes. In 1917 too few for a roll call, and in 1918 practically none, but this year the bill, for some reason, was given to the Senate first, always, in my experience, a dangerous procedure, and that body passed it 16 to 6. The House killed it by an overwhelming vote, to be sure, but it is evident that the snake is scotched only, not permanently destroyed.

The class legislation argument which was again used in the Senate discussion, may have contributed to this session's record, and shows the desirability of the passage of the Massachusetts Medical Society's bill which extends protection to all the school children.

I am grateful for the opportunity to thus bring the subject before you, for those who have nothing to do with the matter cannot, I think, realize how many things have to be thought of, how much hard work done by your legislative committee, simply to keep on the statute book this one law which provides that a public school child, unless possessed of a physician's certificate, stating that he is an unfit subject for vaccination, must prove that he has been successfully vaccinated, and that hard work will, year after year, have to be done until each member of this Society constitutes himself a committee of one, at his home, to spread among his people the doctrine of vaccination.

The antivaccinationists are busy all the time, concentrating their work, now here, now there. Last year, Worcester was their field of endeavor. A branch of the so-called Medical Liberty League was organized with an antivaccination osteopath at the head. Meetings were held in private houses and public halls, and both Worcester Senators voted for repeal.

Several years ago, Pittsfield was prominent in the movement. A large delegation appeared at the hearing and there was handed (not read) to the Committee, a statement that the majority of physicians in that city were opposed to the school law. An indignant denial was, of course, easily obtained. Another year, an attempt was made to induce a prominent physician of Taunton to enter into a joint debate on the matter, in a public hall, with the Secretary of the Medical Liberty League, and this lady has stated that she will never cease her endeavors until she has attained her object—repeal of compulsory vaccination in our public schools. Nor can we afford to cease

our endeavors to maintain, strengthen and extend the law, if we are true to ourselves, to our profession and to the State.

CANCER.

By JOHN E. TALBOT, M.D., WORCESTER, MASS.

OCCASIONALLY the correlation of two seemingly independent facts develops a line of thought which leads to good results. This paper is offered with apologies by the author, as it is based upon just such a chance event. The resulting line of thought has led to a theory, a suggestion, which gives a new conception, so far as I know, of the process involved in the production of cancer. It is offered merely because it appeals to the writer and may be productive of good to others.

There are at least three well known and established syndromes which result in cancer. First, the race which eats very hot rice, resulting in cancer of the oesophagus.¹ That cancer affects the men only in this race, and not the women, is undoubtedly due to the fact that the men eat at the first table, so to speak, and thus get the rice at its hottest.

Second, another race whose custom it is to wear a charcoal stove against their abdomen.² In this race, cancer of the abdominal wall is common whereas it is almost unheard of elsewhere.

Third, among our own race, there is the association between cancer of the lip and the frequency of smoking a clay pipe.³ Though less significant in this class than in the other two, yet this association is suggestive.

These three well-known clinical entities have given basis for the belief that cancer is in some way due to chronic irritation.

What are the details clothed in this term "chronic irritation"? What actually occurs? In the first two instances mentioned, we undoubtedly have an application of heat to the lining of the oesophagus or the abdominal wall sufficient to cause the death of the surface epithelium. Death of the surface epithelium is a normal process and calls for replacement by the germ cells of the skin known as the rete.

There are, therefore, two extraneous influences from the normal physiological process, an abnormal temperature and a call for a great increase in rapidity of replacement.

This latter influence is in all probability the crux of the whole situation. Rapidity of cell multiplication may be said to be the fundamental element of cancerous tissue. The cells produced in cancer are of the same general character as the physiological cells in physiological replacement. Some function is lacking however.

During my course in the Medical School,

Dr. E. H. Nichols⁴ of Boston, showed a case in a clinic which had the following history:

A woman came under his charge on account of osteomyelitis of the tibia. Dr. Nichols, in carrying out a line of treatment which was the result of his own experiments on animals, operated on this woman and completely removed the bone substance from this tibia, leaving only the periosteum. The germ cells in the periosteum reproduced the bony substance of this tibia, and in the course of time this tibia was completely reproduced to the size and shape of the previous tibia and the same length as the opposite leg. It so happened that infection broke out again in this new tibia and resulted in a second operation, at which time the same procedure was adopted as at the first operation; that is, the whole bony substance of the tibia was removed, leaving the periosteum like a loose glove. Just as in the first case, the tibia reproduced itself and grew to the exact size, length and shape as the other two tibias and that of the other leg.

This case demonstrates the working of a physiological principle which is a very common event in the development of the human being and the replacement of tissues which are destroyed by ordinary wear and tear. This phenomenon offers proof of this principle in a very striking and mysterious way. Mysterious as it is, it is, nevertheless, a very important physiological law and shows that there is present in the system an interdependence in the process of physiological replacement of tissue and a means for checking this replacement of tissue at the proper time.

Much has been written on trophic nerve disturbance. Many disbelieve, and others believe. It seems to me that this phrase "trophic nerve control" gives the best mental conception of the forces that must have been at work in replacing the tibia and then stopping that reproduction at the proper place.

Here, then, is the dividing line between normal physiological cell multiplication, and cancer. Cancerous tissue may be said to have lost the physiologic trophic nerve control. What is it that destroys this trophic control?

There are three elements in physiological cell life: food supply, physiological function with relation to the whole human organism and replacement of destroyed cell tissue. Food supply is undoubtedly dependent on blood supply. Physiologic function in the human organism is dependent on both food supply and nerve supply. To make clear what I mean by nerve supply, I will mention as an example the flow of saliva resulting from the sight of a lemon. Physiological replacement of cells is dependent likewise on both food supply (blood supply) and is subject to trophic nerve control.

Cancerous tissue always has a plentiful food

supply, as evidenced by its blood supply. What it seems to have lost is its nerve control as expressed by its lack of physiological function plus its lack of trophic nerve control. The stimulus for cell reproduction must be inherent in the germ cells themselves provided the food supply and temperature are proper.

To trace the process of beginning cancer, we have first a local external force applied which results in repeated destruction of cells. This process stimulates the germ cells of that tissue to activity greater than is physiological. The process not only calls for rapid reproduction of physiological cells, but also stimulates an *increased reproduction of germ cells themselves*. In order to keep this rapid reproduction process in physiologic control, each new germ cell must acquire a trophic nerve attachment. Failing in this, we have the situation of a germ cell containing the inherent power of reproduction, provided that it has sufficient food supply and is kept at a proper temperature. Unless this nerveless cell is controlled by acquiring its trophic nerve connection, we have the exact situation present in cancer of rapid cell reproduction without physiologic trophic nerve control.

Let me now mention the exact similarity in this situation to the growth and multiplication of bacteria. Bacteria have, like the cells, an inherent power of reproduction, provided they have a sufficient food supply and are in the right temperature.

Whatever the cause of cancer is, that cause is local. The cancerous condition begins in a minute spot, spreads first by continuity, and later goes through the stage of metastases. This process is exactly similar to bacterial invasion. This local beginning without a similar reaction in similar tissue, speaks loudly in favor of some minutely local pathological element and adds weight to the conception of a local loss of nerve attachment.

This trophic nerve control must in all probability be one of the functions of that great but little understood system of sympathetic nerve fibers which constitutes the great switchboard of somatic nerve stimuli.

Does this conception of the etiology of cancer present a workable theory?

In the first place, it is submitted that it has one of very great attraction in that it represents a complete biological unit. This biological unit has the human organism on the one extreme and the bacterial organism on the other.

The distinction between the human animal and the lower animals is the high development of the nervous system and this same principle pertains as we proceed down the scale of animal life. The true conception of the "nervous system" must not be confined to the sensory and motor neurons to the exclusion of the sympathetic neurons.

In general the degree of malignancy of cancerous growth may be attributed to two factors, the age of the individual and the potential power of the tissue involved for its own reproduction. For instance, cancer of the tongue is rapid and very malignant. The epithelium of the tongue has a high physiologic potential power of reproduction because of the constant injury to that epithelium through destruction by trauma and chemical agents. In youth, there is a high degree of potential power of reproduction necessary for the development of all tissues.

Thus, the malignancy may, in general, be attributed to the potential power of reproduction inherent in the tissue involved.

Cancer attacks old age rather than the young. I would attribute this fact to the gradual diminution of that inherent power of reproduction in the nerve tissue cells themselves. In short, old age, pure and simple, represents a gradual diminution of the inherent power of the cells of the different organs for cell reproduction. The physiological control of this power of reproduction is dependent on the trophic nerve system which in itself is gradually losing its efficiency.

We have a corollary in the central nervous system; senility, which although it may be due in part to other influences, presents a picture of this loss of potential efficiency.

Trophic ulcers are common in old people and particularly common in insane hospitals where there are other evidences of the general breaking down of the nervous system. These ulcers may be interpreted as representing the gradual failure of the normal stimulus to cell reproduction plus an impoverished blood supply, but the nerve attachments are still maintained and the potential reproductive power of these particular germ cells is reduced physiologically.

Let me describe in detail a possible hypothesis of gastric cancer. As I have stated above, the essential element is repeated destruction of physiologic cells in excess of the physiologic rate. How is this brought about?

An external irritant or source of destruction is necessary. Let us start with an injury to the epithelial lining of the stomach. This injury may be of two types, traumatic and infectious. These epithelial cells are almost constantly bathed by a fluid which has the power of digesting animal tissue. In their living physiologic state they have the power of resistance to this fluid so that the lining of the stomach does not become digested. Injure them or scrape them off and they are digested as any other tissue is. The injured and digested cells must be reproduced and at the same time attain their protective power against the digestive juices. It is at this point that there is a great difference between the traumatic abrasion and the infectious ulceration. In the traumatic abrasion the surrounding blood supply

of the contiguous tissue is not injured. This available blood supply will help materially in the repair process with the result that the wound is healed with greater rapidity than in the case of the infectious ulcer. The traumatic injury to the stomach is therefore less a factor in the production of cancer than the infectious injury.

Whether we like it or not, there is increasing evidence being brought forth that foci of chronic sepsis in the body result in small thrombotic processes in places remote from the original focus. In an article entitled "A Clinical Study of the Placenta," I have endeavored to show this to be a fact.

Transfer this process to the stomach for the moment and follow the result. Assume a small area of periarteritis in those minute arteries which go to the cells of a small area of gastric mucosa with resulting thrombosis of the vessels. The result will be a coagulation necrosis of the part supplied. The surface is bathed with gastric juice and the necrosed cells become digested.

The germ cells of the mucosa and underlying tissues are forced to reproduce in an endeavor to replace the lost tissue, but this replacement must come from the two edges of the broken chain of germ cells and this process must go on in the face of a reduced blood supply locally and in the face of the attacking gastric juice. In short, we have the production of a gastric ulcer the size of which is dependent upon the extent of the thrombosed area. The larger the area involved, the longer this healing process will proceed and we then have the element of long-continued local irritation of the germ cells to reproduce their kind. *Trophic nerve tissue or filaments must follow this process as stated above.* This process, like the other, must proceed from the edge of the ulcer because of the death of the intervening tissue. It would be reasonable to state, therefore, that the further away from the original margins of the ulcer the process gets, the greater the difficulty for the trophic nerve filaments to follow the new cells which are reproduced. The moment that the germ cells produce a germ cell free from its trophic nerve filament the process of cancer has begun.

Cancer of the gastrointestinal tract is most common in those areas where ulceration is most likely to occur if we look at these ulcerations as thrombotic in origin.

The two essentials of a thrombotic process are a low grade infection and a slowing of the blood stream.

Cancer in the gastrointestinal tract is most common at those points at which the movement of the bowel contents is the most sluggish. The stomach, the caecum, the flexures and the rectum. The pressure of the weight of the bowel content or stomach content is all that is needed to slow the blood stream locally. Introduce a

minute embolus of bacteria which passes by chance to these slowed areas and we have the two etiological factors which are believed to contribute to the possibility of a local thrombosis.

In support of this conception, it is submitted that if the locality of hematogenous boils or abscesses of the surface of the body are studied carefully, it will be seen that the most common localities are where there is localized external pressure. The pressure of the collar on the back of the neck is a fair example.

It is apparent from the reading of such articles as have come to my attention, dealing with the etiology of cancer, that it is this inherent power of cell reproduction which is being studied and not the cause of the disassociation of the cancerous tissue from its inter-relationship with other tissues of the organism.

This inherent power of cell reproduction is just as apparent in bacterial life as in cancer cell life.

The transplantation of cancerous tissue in animals is in all probability subject to the same laws as those which govern infection of tissues with bacteria. What we know today of the grouping of blood in blood transfusion may be an example of the same law which prevents the transmissibility of certain cancerous tissues in certain types of species. In short, the organism has no resistance to the toxins of cell reproduction of its own issue, but can develop a defence to or a cytotoxic substance for cells which are foreign to that organism.

The necessity of blood grouping in doing skin grafts, referred to by J. F. Pemberton,* may be another example of this resistance to foreign cell invasion.

To summarize the theory, cancer is the result of the breaking down of the mechanism which maintains the very apparent inter-relationship of tissues of the complex organism. The moment that this inter-relationship is broken, the cell or cells thus freed revert to their primary fundamental; that is, the unchecked power of reproduction.

This point of view places bacteria and the disassociated cell of the complex organism on a like basis. The great difference between these single cells, the bacteria and the disassociated tissue cells in their action on the complex organism lies in the fact that the bacterial cell is a foreign invader to which the complex organism has developed a partial or complete defence or immunity. The by-products of the disassociated cells, however, are of the same nature as the by-products of the other similar tissues of the body and the complex organism is, therefore, unware, so to speak, of the local change until the process overwhelms the life processes of the complex organism. Hence cancer is 100% fatal.

It is suggested that the mechanism for main-

taining the inter-relationship of tissue growth is the sympathetic nerve system, more specifically spoken of as the trophic nerves.

REFERENCES.

- * Mayo, W. J.: "Cancer of the Stomach." *Surg., Gyn., and Obst.*, April, 1918, Vol. xxvi, p. 268.
 † Bainbridge, W. S.: "The Cancer Problem," p. 67. Bainbridge gives the further references as follows: Neve, E. T.: "Decade of Tumor Surgery in Kashmir Mission Hospital," *Indian Medical Gazette*, May, 1902, page 164; also, Bashford, E. F.: "The Ethnological Distribution of Cancer," *Third Scientific Report on the Investigation of the Imperial Cancer Research Fund*, 1909, p. 1.
 ‡ Bainbridge, W. S.: "The Cancer Problem," p. 68.
 § Nichols, E. H.: *Jour. A. M. A.*, 1904, p. 428, Case 8.
 ¶ Talbot, J. E.: "A Clinical Study of the Placenta," *Surg., Gyn., and Obstet.*, June, 1921, p. 352.
 * Pemberton, J. F.: "Skin Grafting," *Jour. Iowa State Med. Assn.*, 1920, Vol. x, p. 181.

THE ETIOLOGY OF HYSTERIA

By MAX RAFF, M.D., F.A.C.P., WORCESTER, MASS.

PHYSICIANS who have been in practice for many years have, no doubt, had sufficient opportunity to observe the symptoms in the ordinary cases of hysteria; symptoms such as convulsions, contortions and contractions, temporary loss of speech and of consciousness. They have noticed that such cases, especially among the female sex, have little in common, the symptoms, if closely noticed, reveal the fact that no two patients present the same signs of the neurosis. It is also true that a description of the disease in any text-book gives a long list of symptoms, and we wonder how any one patient can endure so much agony, perhaps voluntarily. This in itself only goes to prove that we should know that not any one patient possesses all of the symptoms described under the heading of hysteria.

After a careful study of a large number of such cases, it has been discovered that, although profound emotional shock is the cause of onset of an hysterical convulsion, it is not the cause of hysteria itself. It is not caused by intense worry or by the concentration of the mind upon the self. If worry were the cause of hysteria, then we all would be suffering from the neurosis. The emotional shock simply acts as a cause for the patient to lose her conscious mind, and thus to be thrown into a subconscious mind, or, as some writers are wont to call it, the "unconscious."

The patient, during an outbreak of hysterical symptoms, really discloses the contents of her unconscious mind. She now presents to us, a great store of her past experiences,—from the cradle to the present time. Many childhood practices are re-enacted, such as the crying and

the convulsive distortions of early life; the repeated and prolonged yelling and the pulling of the hair. We also notice the hysterical pains which are so common among children. We can remember how small children refuse to stand on their legs when they are dissatisfied with the commands of parents. They exhibit the feelings of hate when called upon to do errands which they are reluctant to perform. When parents implore their children to obey them, it makes matters worse. Such instances are common in hysterical patients. The more that a physician tries to soothe a patient, ill with hysteria, the more does she become violent, *i.e.*, the attack of outbreak of emotions becomes worse, but the disease itself, *i.e.*, the hysteria, as a neurosis, always remains the same. The disposition is firmly rooted in the unconscious mind, and the so-called cure of the attack of emotional fury does not affect the disposition, or the predisposition to the disease.

It is a well-known fact that sympathy extended to such a patient only helps to increase both the severity and the duration of the attack. If we wish to abort it, we should forsake our kindness to the patient and to act rather harshly towards her. This means of treatment most always succeeds in stopping, more or less abruptly, the convulsive movements. It certainly does not cure the hysteria, because we know that hysterical people have a large number of emotional onsets brought about almost every time that some real worry or trouble involves their minds.

Hysteria is not hereditary. Perhaps it runs in families for the reason that parents give to their children the same treatment during life which they themselves received when they were children. That which is hereditary is the baby-like constitution, the infantile and undeveloped self-control, one of the highest faculties of the human mind. As children, the hysterics have always had their own way, and the practice of giving to children anything that they desire, is full of folly, and independence is sadly lacking in them during their future years.

Hysteria is very common among Hebrews, French, Italians, and the peoples of the near East. These races bear and like large families. They caress and kiss their children regularly. They give them anything that they wish, be it food or drink, and this is why we observe so many cases of gastroenteritis among them. The

children grow up with a "crutch" and lean upon the shoulders of their parents. Even after marriage, children are prone to live in the same houses with them. Married daughters, in times of trouble or sickness, act like mere children, and weep when their parents are not at their bedside. They expect very little or no sympathy from their husbands, and if such sympathy is extended them, it is far different from that which they have been accustomed to receive from their parents. When such a woman has misfortune embrace her, she does not attempt to find the cause of it, nor does endeavor to fight it bravely, but instead, she tries to forget it, and this she does by falling into a faint or by going through an hysterical attack of unconsciousness. Her conscious mind has immediately forsaken her and in its place, she has substituted her unconscious mind. This unconscious state, of course, brings her back to the days of her childhood, when all was serene, and without trouble or worry. She is once again a child and she plays the part of the child. Try to calm her in her attack, and you are extending to her a mute justification for her actions. Talk to her kindly and she will perform those acts which she has done when she was a youngster. She will refuse to accept any means which are employed by the physician to assist her in ridding her of the attack. Give her a spanking, talk to her harshly and ignore her actions, refuse to be bothered with her condition, and leave her alone, then you will invariably notice that she will complete the attack and stare around the room as if she had just entered it.

During an attack, it is well for the physician to notice every symptom, because every such symptom will act as a clue to the cause of the hysteria itself. An analysis of such actions will really serve as a means of discovering that which has during early life played an important rôle in the development of the neurosis. The parents of the patient might be able to inform you of instances in past years when their children, now hysterical, had exhibited the same kind of peculiar actions. Some of these symptoms might not be the exact repetition of juvenile performances, but then they are perhaps masked and should be "unmasked," and their true interpretation elicited.

After a length of time has elapsed, the physician ought to try to study the dreams of the

hysterical patient, because this and the study of the symptoms during an attack of violent emotional outbreak will make it possible for him to arrive at the latent or unconscious thoughts of our unfortunate sufferers. Psychoanalysis lays great stress upon the dream interpretations, but to my knowledge, I think that such a course, coupled with that of the study of the manners in which the patient goes through her emotional demeanor, would permit us to reach the rendezvous much earlier and easier.

The psychoanalyst having slowly unravelled the whole life history, by means of regular interviews in a conscientious way, the patient will herself notice distinct parts in her life history which have had important connections with the emotional attacks of hysteria. She will discover her weaknesses, also her failures which gave her a diminution in self-control: she will likewise perceive that there has been something similar in every attack which she has had: something which from her early life has really repeated itself.

The present worry or trouble has only served to displace the conscious by the unconscious, just as the friction of a match causes the sulphur and phosphorus to ignite.

REPORT OF TWO CASES OF BLASTOMYCOSIS.*

BY WILLARD BOTDEN HOWES, M.D., DETROIT, MICH.,
AND
FLINN F. MORSE, M.D., DETROIT, MICH.

SYSTEMIC BLASTOMYCOSIS, although not a common disease, is probably not as rare as some of our text-books seem to suggest.

Fifty cases have been reported in medical literature since Busse reported his case in 1894. I have been unable to find a single case reported from Michigan, although Sihler, Pappard and Cox, in their report of a case, mention the fact that the majority of the cases reported have been from the vicinity of Chicago, and they mention Michigan as a locality where cases have been found.

The disease is particularly important in connection with diseases of the chest, because the onset, early history, physical and x-ray findings are so similar to a tuberculosis invasion. Necropsied cases show the lungs to be more fre-

quently affected than any other organ, with 97 per cent. positive, the skin running second, with 90 per cent. As the disease progresses, lesions become numerous and may involve any part of the body.

The portal of entry is probably by way of the respiratory tract.

Of the cases reported, all but three were males. Ages ranged from 17 years to 63 years, the majority of the cases being in the third decade. Unhygienic surroundings seem to favor the development of the disease. Italians and Poles are more prone to the disease.

The diagnosis depends upon finding the yeast, although the characteristic skin lesions and presence of multiple abscesses are rather convincing evidence and should at least suggest blastomycosis.

To date, there is very little to offer in way of treatment, except in surface lesions where surgery can be employed.

Potassium iodide, copper sulphate, vaccine therapy, roentgen ray, have been used, but the number of cases treated has been too small to draw any definite conclusions in favor of any of these therapeutic measures.

The disease runs a subacute or chronic progressive course; duration of reported cases ranging from four months to 17 years. Nine out of every ten progress to death within a year.

CASE No. 3089. Single, male, white, 32 years, machinist, born in Belgium. Has been in states five years, living all the time in Detroit.

Family History—Father died at age of 40. Result of accident. Mother in good health last time heard from. No tuberculosis in father or mother's family. One sister living and well. Previous History—Born and brought up in city. Not especially good environment; healthy childhood. Began work at 13 years of age. No intimate exposure to tuberculosis, as far as known. Denies venereal disease and alcohol. Smoked about ten cigarettes a day, which were inhaled. Tea and coffee moderately. Always been well and strong, up to the time of present illness. Operation for inguinal hernia 1918. Influenza, December, 1919. Present Illness—Last perfectly well, March 1919. Following month, had feeling of lassitude, noted lack of staying power. Slight cough, occasional chills and night sweats. Did not feel well enough to work, but continued until following December, when illness became acute and was diagnosed influenza. He remained in bed five weeks, then began to get around, and returned to work. Strength did not return to normal. Continued

* Read before Michigan Trudeau Society, October, 1920.

to cough and had occasional pains in chest. Worked only four weeks. Weakness forced him to give up work. Continued to lose weight and strength. Entered a local hospital, remained for six weeks; returned to his home unimproved. June 22, 1920, was sent to the Detroit Tuberculosis Sanatorium by U. S. P. H. Service, with diagnosis of pulmonary tuberculosis. On admission, chief complaints were pains in knees, ankles and left chest. Occasional night sweats. Extreme weakness.

Physical examination—Well developed, poorly nourished man, abundant growth of brown hair. Slight exophthalmus. Thyroid not enlarged, pupils normal to light and distance. Tumefactions over left eye size of hickory nut, slightly smaller one right eyebrow. Skin dry, acne on back. Scar left lower quadrant, palpable inguinal glands not tender. Abscesses on both legs and feet. Feet swollen, tender. Teeth—Poor condition, retraction of gums, evidence of pyorrhea. Tongue—Median extension, slight tremor, clean. Tonsils—Small, fibrous. Appetite fair, digestion unimpaired, constipated, abdomen contains considerable gas. Spleen not palpable, liver dullness within normal limits. Heart—Rapid, weak action, no murmur blood pressure. Systolic, 96. Diastolic, 58. Radial pulse, fair quality. Pulse range, 100-140. Temperature range, 98-103. Chest—Slender type, slight scoliosis, no pulsations noted. Clavicles and scapulae prominent. Retraction at apices. Restriction of respiratory excursions at left base. Vocal fremitus increased left from inferior angle of scapula to base. Slight dullness right apex to third rib and fifth vertebral spine. Slight dullness left apex to third rib and fifth vertebral spine, increased to marked dullness from third rib and fifth vertebral spine to base. Broncho vesicular breathing both apices moist râles left third rib and fifth vertebral spine to base, increased by cough. Urine—Amber, acid 1022, negative to albumin and sugar. Few pus cells. Blood Count—Leucocytes, 22,750; erythrocytes, 5,280,000; polymorphonuclear, 84%; S. mononuclears, 11%; L. mononuclears, 3%; transitionals, 1%; hemoglobin, 64%. Wassermann, negative. No sputum; does not expectorate. Pus from abscesses contained blastomyces. Patient's condition grew rapidly worse, physical signs of chest increased, abscesses, discharging sinuses and cutaneous lesions became more numerous. At one time, 14 discharging sinuses were being dressed. Patient died after 14 weeks' residence.

X-ray report previous to his admission.—Stereoscopic plates were made of the chest. The heart and aorta are normal in position and size. Left chest has a rounded shadow, with increased density falling in middle third of the lung from the heart to axillary line. There is a smaller area in base of lung which is clearing. There is some peribronchial infiltration in the upper third of lung. Right chest—The hilus shadow is con-

siderably enlarged and there is a large amount of peribronchial infiltration scattered throughout the lung, especially in the upper half. Conclusions—The shadow in left chest is suggestive of an unresolved pneumonia or interlobar pleurisy with effusion. We are inclined to believe pneumonia to be probable origin. The changes in both uppers gives us the impression of having tuberculosis in the origin.

X-ray later.—Films of chest show a curvature of the spine to right. The right leaf of the diaphragm is well visualized. The left leaf of the diaphragm is high. There is no evidence of fluid in the phrenocostal angle. There is a marked consolidation over the lung field on the left side and over the greater part of the lung on the right side, except the phrenocostal angle. The heart shadow is not clear. There is distortion of the trachea, it being pulled to the left. The appearance is that of advanced bilateral consolidation. In the upper right, we note small areas which look like multiple small cavities.

Autopsy—Body is that of an extremely emaciated man about 35 years of age. There are numerous fungating lesions about the nose, lips and the rest of the face. These vary from the size of a pea to the size of a quarter, have crater-like, raised margins covered with scabs. The base is boggy and soft. Upon pressing the lesion, small droplets of the pus exude in many little points from the base of the lesion. There are dressings in place over the knees and ankles, covering discharging sinuses in those regions. There is a superficial cutaneous lesion in the left thorax which is found to communicate with a diffuse purulent lesion of the intercostal spaces of the left thorax. On section, the panniculus is found to be practically absent. There is no gas or fluid in the abdominal cavity and no signs of post-mortem decomposition. On incising the sternum, we find the lower end to be involved in a diffuse purulent process. There are discharging sinuses between the third and fourth, fourth and fifth, fifth and sixth ribs, which communicate with the pulmonary tissue below on the left side. On removing the sternum, we find the left lung completely adherent by old organized fibrous tissue, with numerous sinuses discharging pus, opening from the interior of the lung to the intercostal spaces. There is no empyema pocket in the pleura. The pericardium is everywhere adherent to the heart and cannot be dissected off. There are numerous whitish spots over the auricle resembling small indolent, purulent infiltration of blastomycotic origin. Mediastinal tissue is densely bound together. On removing the heart, we find the muscular and valvular portions without gross lesions, the blood vessels in the normal state. There is no free pus in the pericardium, but a low grade, long standing, fibrous, adhesive, pericarditis. The right lung is very voluminous, firm, and relatively airless, and on section presents the

picture of a diffuse, purulent, lobular, bronchopneumonia. The general appearance of the cut section resembles closely that of an early stage of acute pneumonic phthisis, but on pressure of these yellowish surfaces with the knife, small pin-point like droplets of pus can be caused to exude. There is no old fibrous organized process and no cavitation. The mediastinal lymph nodes are swollen, gray and oedematous. There are no purulent areas nor caseation in the lymph nodes. The left lung has to be dissected off from the costal pleura. The cortex is partially torn upon delivering from the thoracic cavity. On section, it presents very much the same picture as the right, except that there is an area in the lower lobe which is more fibrous and is grayer color, shows more organization, and is much older than the rest of the process. Inspection of the abdomen reveals all the organs to be free from evidence of these lesions, except the spleen, which is diffusely spotted over with tubercle-like points varying in size from a pinhead to a pea, but on pressure exuding the pin-point like droplets of pus. There are a few very early areas in the right kidney, and the right adrenal has three such spots in its cortex. The abdominal organs are otherwise entirely negative in the gross.

Pathological Diagnosis—Pulmonary, systemic, cutaneous blastomycosis.

Case No. 1767. White, male, 32 years, married, Italian, fireman. Family and previous history negative. Dates present illness back three months. At that time, had sores on body, and also cough. Pulse range, 84-100. Temperature range, 97-100.2. Patient died after four weeks' residence.

Autopsy—Very emaciated man, apparently 34 years of age, with reddish brown hair and beard. Marked fungating lesions are seen over alae nasi, cheeks, forehead, and superior maxillary region, also on the right and left hands, both feet, and left lower leg. Those on the upper part of the body are the characteristic papillomatous lesions of blastomycosis. There are tattoo marks on both arms. There is no oedema of extremities. Small lesions on the penis are not characteristic. On opening the thorax, the diaphragm is seen to extend to the fifth rib on the right. The pericardium contains the normal amount of clear amber fluid. The cardiac apex is seen at the fifth rib, the left lung is bound completely to the costal pleura by old adhesions. The heart is normal in size, the left ventricle is empty, the mitral, the aortic, and ventricle are negative. The muscle is browner than normal, and shows no fatty changes. The right ventricle is empty. The tricuspid admits three fingers loosely. A small post-mortem and chicken-fat clot is in the right auricle and extending into the pulmonary vein. The pulmonary artery and veins are negative. The first part of the aorta shows moderate

nodular sclerosis. The semi-lunars are normal. The left and right coronaries show no sclerosis, and appear normal. The heart is negative, except for moderate hypertrophy of the left ventricle and moderate brown atrophy. On removing, the left lung does not crepitate to any great degree. The costal pleura is attached by strong fibrous bands. On palpitation, shotty nodules are felt throughout. On section, the parenchyma is filled with firm, yellow masses, rather more yellow than the usual tubercle. The center of the mass does not break down and form pus. The right lung is voluminous, and not adherent. It contains more air than the left. It is beset throughout by large, hard discrete nodules, from pea to hickory nut size. The spleen is normal in size and shows a post-mortem autolysis and digestion; it is otherwise normal. The liver is somewhat enlarged and slate colored. It is a good deal firmer than normal on section. It shows a moderate passive congestion and fibrosis, but no blastomycotic spots. The left adrenal is normal in size and shows no changes in the medulla. The left kidney is somewhat larger than usual. On section, it shows passive congestion, but no other lesion. The right kidney is in every way similar to the left. It shows passive congestion, but no other lesion.

Pathological Diagnosis—Pulmonary and cutaneous blastomycosis.

BIBLIOGRAPHY.

- Hurley: *Jour. Med. Research*, January, 1916, 23, 499.
 MacLane: *Jour. Infect. Dis.*, August, 1916, 19, 194.
 Wale and Bell: *Arch. Int. Med.*, July, 1916, 18, 103.
 Montgomery and Walker: *Jour. A. M. A.*, April 6, 1902.
 Stober: *Arch. Int. Med.*, April 15, 1914.
 Shiller, Peppard, Cox: *Lancet*, April 15, 1917, 27, 252.
 Dennis: *Am. Otch. Rhin. Laryng.*, June, 1918, 27, 571.
 Morris: *Jour. A. M. A.*, Dec. 6, 1913.

"SURGICAL ASPECTS OF ABDOMINAL TUBERCULOSIS IN CHILDREN."

BY W. E. LADD, M.D., F.A.C.S., BOSTON.

ABDOMINAL tuberculosis in children like any disease in which the diagnosis is often difficult and for which different forms of treatment yield varying success, gets very easily into a confused state. Such is, I believe, the present condition of this disease. For the sake of clarification it seems wise to remind you of some of the fundamentals and to emphasize certain facts brought out by a study of cases occurring at the Children's Hospital.

In spite of repeated statements in the literature that tuberculosis of any form and particularly abdominal is rare in the first year of life, we have found it as frequent at this age as at any age up to twelve years.

* Read before the New England Pediatric Society, at Boston Medical Library, on May 13, 1921.

Though insufficient work has been done to prove what percentage of infections are due to the bovine type of tubercle bacilli, it is probable that this type is responsible for the majority. The lymphatic system of children is more prone to tuberculosis infection than that of an adult, or, to put it another way, the bovine type of bacillus may have a predelection for the lymphatics, and children, on account of their diet, are more often exposed to this type of infection.

It should be remembered that raw milk is not the only source of infection but that almost any of its products may carry it quite as well. For example, according to experiments done by the Department of Agriculture in Washington, the tubercle bacillus may remain virile in butter for a period of ninety days while cheese, ice-cream and other products of tuberculous milk are capable of disseminating the disease.

It is probable that most of the abdominal tuberculosis of children comes through the intestinal tract. The extension of tuberculosis from the female genitals which Mayo finds so common in the adult, so far as I know, does not occur in childhood. Both anatomically and physiologically, the right lower quadrant is conducive to the development of infection, for it is here that the intestines are best supplied with lymphatics and it is here that their contents move more slowly. Such being the case, it is not surprising that we find the right lower quadrant the common starting point for the tuberculous process. The tubercle bacilli find their way to the lymphatics of the mesentery either from a minute ulceration in the intestinal mucosa or by penetration of the mucosa without leaving any trace, in the same way that they penetrate the tonsil to the cervical glands without leaving demonstrable lesion behind.

The infection either becomes localized in the mesenteric glands giving what is termed, *Tabes mesenterica*, or it may extend to the peritoneal surface developing miliary tubercles and fluid. This combination is commonly known as the ascitic type of the disease. It would be preferable to refer to this as the ascitic stage in the disease rather than the type. Thirdly, one finds patients with no fluid but with coils of the intestines adherent to one another and to the parietal peritoneum. This is commonly re-

ferred to as the plastic type or stage. The pathologists tell us that this is nature's method of curing the disease. I am not quite sure that they are right in considering this a curative stage for two reasons; one, that it has been many times demonstrated at secondary operations on patients who had recovered from tuberculous peritonitis, that few adhesions exist, and secondly, that a fatal termination is the common result in patients suffering from a marked degree of plastic peritonitis, even with no other lesions in the body.

The problem of diagnosis varies to a certain extent with the stage of the disease. One rather surprising feature stands out, however, at all times; namely, that though the disease is by nature more or less chronic, the symptoms for which these children seek relief are in most cases acute and recurrent. Recurrence of moderately acute symptoms of short duration is perhaps the most uniform feature.

Where the infection is confined to the mesenteric glands of the lower ileum and caecum and these are caseous and broken down, to differentiate from an appendix abscess is frequently impossible. The symptoms are acute, vomiting has taken place, there is tenderness over the appendix region associated with involuntary muscle spasm and rigidity. The temperature is between 100 F. and 102 F. Under such circumstances time is usually not taken to ascertain the result of a Von Pirquet reaction and the white count may be only suggestive. When the glands are less broken down but still large enough to be readily palpable and with less tenderness than one would expect from an appendicitis and more mobility of the mass, a correct diagnosis may be made. But simply hyperplasia of the mesenteric glands must be remembered in the differential diagnosis. Again, where the glands involved are those of the mesentery of the ileum further removed from the ileo-caecal junction, a mass may develop in the mid-line just below the umbilicus which may be differentiated from an appendix abscess by its feel, mobility and position. When time is taken for a Von Pirquet reaction, it is a great aid to diagnosis, a negative reaction with reliable tuberculin, practically ruling out tuberculosis except in children who have an overwhelming infection. The only cases of abdominal tuberculosis which I have seen with a negative Von Pirquet reaction have been in infants having in the abdo-

men large tubercular masses and the peritoneal cavity practically obliterated by adhesions. The ascitic stage of the disease offers fewer difficulties in diagnosis. The symptoms simulate less closely other diseases. The feature usually noticed is the gradually increasing size of the abdomen. Ascites from other causes is perhaps more rare in the child than in the adult, and one should be able to demonstrate its cause. Rare conditions such as large ovarian, mesenteric or omental cysts must be considered and are sometimes difficult to differentiate. We have had five such cases referred to us with the diagnosis of tuberculous peritonitis, some of which have been correctly diagnosed as cystic only after the child was etherized before operation. Signs of abdominal fluid with small palpable masses of mesenteric glands associated with a positive Von Pirquet, and lack of the extreme muscular rigidity and symptom of a diffuse septic peritonitis make the diagnosis of tuberculous peritonitis possible.

Patients suffering from the plastic stage of the disease may have a comparatively long story of digestive disturbances, being below par and not gaining in weight. They also usually have a story of recurrent attacks of abdominal pain and come to the surgeon only when these attacks become severe or are associated with vomiting and the other signs of obstruction, or possibly when a faecal fistula develops at the umbilicus. As we see patients in this stage not only are they more acutely sick than those in the other stages, but also, in their poor development and emaciation, show more evidence of the chronic malady from which they are suffering. Among our plastic cases, five suffered from complete obstruction, two had perforation with septic peritonitis superimposed on its tubercular lesion, two had fistulae and one had mesenteric thrombosis with gangrene of a foot or more of ileum.

Perhaps it is a little arbitrary to divide abdominal tuberculosis of children into these three distinct stages. It should, however, facilitate the discussion of the problem providing one remembers that any stage may overlap one or both the other two in a given patient. Furthermore, the diagnosis, prognosis and treatment, all vary according to the extent of the process and without making this distinction, the whole problem becomes hopelessly confused.

The history of the treatment of these forms of tuberculosis is interesting. They were first practically all considered hopeless. Then there was a time when surgery was resorted to for most of the cases with some gratifying results. Later it was found that surgery was by no means a cure-all and that many patients recovered as the result of out-door life, proper hygiene, rest and a nourishing diet. The pendulum then swung back too far the other way and surgery was omitted almost entirely. Today, one will find very varying points of view. It seems to the writer however, that there is sufficient data at hand to warrant establishment of more uniformity of treatment than at present exists.

First in importance should be placed proper hygiene, diet according to digestive ability of patient and out-door life. Any treatment disregarding these principles is unsound. Surgery as an aid to treatment in selected cases is of unquestioned value, but the case should be logically selected as far as the difficulties of diagnosis make that possible. Kerley advocates operating only when the amount of fluid is sufficient to interfere with respiration of the heart or when obstruction is imminent. This teaching does not seem to me to be based on either the pathological course of the disease or practical results. As Kerley himself states, the diseased glands may at any time be the starting place for localized or general tuberculosis and probably responsible for a considerable portion of the cases of tuberculous peritonitis. Therefore, when one can make a diagnosis of localized tuberculous mesenteric adenitis, the logical procedure is to remove the infected glands. Likewise, when one finds localized caseous glands on an erroneous diagnosis of appendicitis, they should be removed. As a practical matter this has been done many times with gratifying results both immediate and lasting. There are a considerable number of such cases reported in the literature with good immediate results and eight of my own cases followed from one to eight years have remained apparently well. With this procedure there has been no immediate mortality but of course it must be understood that the number of cases for which it is suitable is limited and no one would advocate attempting to remove widely disseminated mesenteric tuberculous glands. Even in such cases however, it is logical when there

are only a few that show a tendency to break into the peritoneal cavity to prevent this by their removal and by so much reduce the chance of a peritonitis or general tuberculosis.

With regard to the large single tuberculous mesenteric abscesses, it is my practice to incise them, evacuate the pus, wipe out the cavity with iodine and close the incision in the mesentery as well as the abdomen without drainage. Three patients thus treated have been followed over four years and all appear well. Two other similar cases were treated by drainage; one died and one is improved but has some digestive disturbance and a ventral hernia.

In the ascitic stage of the disease the merits of surgical interference or the reasons for resorting to it are not so clear. Many patients, however, who are not improved before laparotomy turn the corner and start to improve soon after and go on to ultimate recovery. When laparotomy is beneficial to such cases it is probably due to the hyperaemia produced by the evacuation of the fluid and letting air into the peritoneal cavity. That this takes place has been proved experimentally. My colleague, Dr. Mixer, has advocated the injection of air or nitrogen into the peritoneal cavity to replace the fluid. Just what the effects of this procedure are has not been demonstrated experimentally and the practical results have not been striking enough yet to persuade me to substitute it for the simpler procedure. Nineteen patients with tuberculous ascites have been followed for periods of from three to twelve years. Of four who had no operative interference, three are apparently well and one dead. Eight had laparotomies with the injection of either air or nitrogen. Six of these patients are apparently well and two are dead. Of seven patients who were subjected to simple laparotomy with the evacuation of fluid, six are apparently well and the seventh has a tuberculous keratitis but otherwise appears improved.

The plastic stage of the disease presents not only a much more difficult problem for the doctor but a much poorer outlook for the patient. Generally speaking when obstruction has taken place from extensive plastic peritonitis, a fatal termination may be expected and the exceptions to this rule are not as frequent as one would wish. In my private practice are two cases of obstruction relieved by operation.

One had only a small amount of adhesions and the obstruction was due to a band of omentum adherent to a caseous mesenteric gland. The other was an infant with recurrent partial obstruction who showed considerable plasticity but some fluid. These cases though obstructive I have not included among the plastic cases.

At the Children's Hospital there have been twenty-three cases of the plastic stage. Seven of these who had no operation are all dead. On three an astomosis was performed to try and relieve obstruction. Two of these patients died before leaving the hospital and the third was temporarily relieved but died five months later. Of the remaining thirteen who had exploratory laparotomies performed, eight are dead, one is somewhat improved and four are apparently well. In this stage of the disease the fact that no cases recovered who were not operated on and a few recovered who were, does not lead me to the conclusion that the operation was the cause of the recovery or that it was beneficial to the patient in any way, except as establishing a diagnosis and causing proper hygienic treatment to be carried out. That gaining entrance to an extremely small portion of the peritoneal cavity through an incision in the abdominal wall can cure extensive plastic peritonitis is not logical. On the other hand, it is difficult to see a child die from obstruction without attempting to relieve it and surgeons will probably continue to perform many unsuccessful operations for this condition with an occasional gratifying one until it becomes possible to avoid the condition existing.

I have purposely refrained from the consideration of treatment by tuberculin, x-ray, Kromayer light and heliotherapy as it does not seem that any of these are as yet on a firm or lasting basis. It is only fair to state that the results of heliotherapy published by Rollier, Hyde and others seem hopeful. A few cases in which I have seen their technique attempted here, have not been successful.

To sum up:

1. The diagnosis of primary abdominal tuberculosis in children is often difficult.
2. The variety of its types of manifestation has led to confusion in its treatment.
3. Hygiene, diet and out-door life is the foundation of all treatment.

4. In the stage of localized mesenteric adenitis, surgical excision is logical, successful, and probably prevents the other stages developing.

5. In the ascitic stage laparotomy with evacuation of fluid is to be recommended when the patient fails to respond to medical treatment after a reasonable length of time.

6. The prognosis in the extensive adhesive stage is poor with any treatment and operation is resorted to only for the hope of relieving obstruction in which it has been occasionally successful.

BIBLIOGRAPHY.

- Biedert, Dr.: Die Tuberculose des Darms und des lymphatischen Apparats. *Jahrb. Kinderh.* 1884, Vol. 21, page 158-207.
- Borchgrevink, O.: Zur Kritik der Laparotomie der acuten Bauchfell tuberculose. *Mittelt. A. D. Grenzgeb. d. Med. u. Chir.*, 1900, Vol. 5, page 454.
- Brazner, W. F. & J.: Abdominal Tuberculosis in Childhood. *Tr. Med. Chir. Soc. Lond.*, 1905, Vol. 87, pages 249-262.
- Cham, Dr.: Oedette Bauchfell tuberculose bei Kindern. *Deut. med. Woch.*, 1900, Vol. 26, page 596-599.
- Cheyne, W. W.: Tuberculous Peritonitis. *Lancet*, 1899, Vol. 2, page 1774.
- Dunn: T. B. Peritonitis. *Pediatrics*, N. Y., 1917, Vol. 2, pages 445-455.
- Edmondson, D. N.: Acute Forms of Abdominal Tuberculosis. *Tr. Sixth International Congress on Tuberculosis*, 1908, Vol. 2, Sect. 2, page 302.
- Fahldt, G.: Die Behandlung der tuberkulösen Bauchfell entzündung in Kindersalter mit besonderer Berücksichtigung der Laparotomie. *Jahrb. f. Kinderh.*, 1905, Vol. 62, pages 304-327.
- More: Diseases of Children, Boston, 1920, Peritonitis, page 27, 245-249, 251-252, 253-258.
- Oeder: Pulmonary Tuberculosis. *Johns Hopkins Hospital Bull.*, 1891, Vol. 2, page 67.
- Rachford: Administration of Drugs to Children. *Am. Jour. Med. Sci.*, 1909, Vol. 127, pages 21-27.
- Ruhrst: Manual of Diseases of Children, 4th edition. Phila., 1914. Peritonitis and mesenteric adenitis, pages 428-440.
- Schmidt, A.: Ueber die Bauchfell tuberculose der Kinder. *Jahrb. f. Kinderh.*, 1897, Vol. 64, page 214-234.
- Schramm, H.: Ueber den Wert der Laparotomie bei tuberkulöser Peritonitis der Kinder. *Wien. med. Woch.*, 1903, Vol. 53, page 254-255.
- Sheffield: Modern Diagnosis and Treatment of Diseases of Children. Phila., 1916. Peritonitis, pages 366-369; Mesenteric, pages 369-376.
- Still: Common Disorders and Diseases of Children, Third edition. London, 1915. Mesenteric, pages 424-430; Peritonitis, pages 420-448.
- Sutherland, G. A.: The Prognosis of Tuberculous Peritonitis in Children. *Arch. Ped.*, 1902, Vol. 20, pages 81-87.
- Fletcher: Tuberculous Peritonitis, pages 244-254. In Garrod, Batson and Thomsen, Diseases of Children, 1912.
- Griffith: Diseases of Infants and Children. Phila., 1919, Vol. 1, Peritonitis, pages 852-859; Mesenteric, page 556.
- Holt: Diseases of Infancy and Childhood. New York, 1916. Mesenteric, pages 391-394; Peritonitis, pages 449-454.
- Kevley: Practice of Pediatrics, Second Edition. Phila., 1918. Mesenteric, pages 694-695; Peritonitis, pages 695-699.
- Kissel, A. A.: Ueber die Diagnose der tuberkulösen Peritonitis bei Kindern auf Grund von 54 Fällen eigenen Beobachtung. *Arch. f. Klin. Chir.*, Vol. 65, page 373-390.
- Koplik: Diseases of Childhood and Infancy. Phila. Peritonitis, pages 411-415; Mesenteric, page 415.
- Maylard: Abdominal Tuberculosis. Phila., 1908. Mesenteric, pages 173-190; Peritonitis, pages 250-259.
- Wright and Douglas: Vaccine Therapy. *Lancet*, 1907, Vol. 2, page 492.

THE VALUE OF QUANTITATIVE PERIMETRY IN THE STUDY OF POST-ETHMOIDAL SPHENOIDAL SINUSITIS CAUSING VISUAL DEFECTS.

BY CLIFFORD B. WALKER, M.D., SPRINGFIELD, MASS.

RECENTLY much interest has been stimulated concerning the relation of post-ethmoidal sphenoidal pathology to retrobulbar neuritis,

by the interesting work of Dr. Leon White,* and also, by Dr. Sluder's remarkable monograph on the subject published in 1918. It is possible, too, that some unweariness has been stimulated by Dr. White's lucid explanation and simplification of a fairly difficult region. To read Dr. Sluder's masterly work on this subject, one somehow gets the impression that visual defects from the post-ethmoidal sphenoid region are quite common, and that these regions ought to be more frequently surgically exposed, even when the conditions are such that the operation would necessarily have to be classified as exploratory in character. Yet the difficulties are such that they should not be allowed to sink into a position of obscurity, nor should any stone be left unturned in search for accurate early diagnosis.

The cases in which this condition may become dominant are in the group called hyperplastic sphenoiditis by Dr. Sluder, Onodi, and others. In this condition there may be no purulent material to be shown in the sphenoid by x-ray, or by direct inspection of the nose, yet hyperplastic changes in the sphenoidal walls may extend to involve the optic, or other neighboring nerves in certain individuals whose anatomical relations in these regions do not provide sufficient protection against such a process.

Thus we may be confronted with a condition of failing vision which may be (labeled) hyperplastic sphenoiditis, and therefore ready to have an exploratory post-ethmoidal operation and yet not objectively differentiable from several other ocular or cerebral conditions, which may give somewhat similar defects. In such a situation any method of examination which may contribute information, should be well studied and quickly available.

It is the value of, perimetry in this connection that I wish especially to emphasize, since I find no stress laid upon it either by Dr. Sluder or by Dr. White. This was vividly brought to my attention some ten years ago, when I first began to study this subject. I was asked to take a field on a case in Dr. Cushing's clinic, neurological clinic, then at the Johns Hopkins Hospital. The patient had just had, at another hospital, an excitation of the post-ethmoidal region, on account of a failure of vision in the left eye.

* White: "Retrobulbar Neuritis from Posterior Accessory Sinus Disease," *Annals of Otolaryngology and Laryngology*.

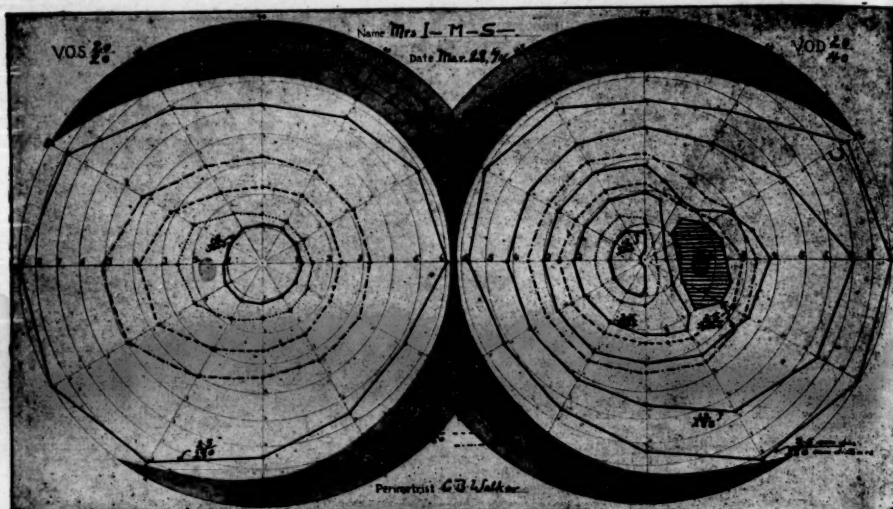


FIG. 1.—POST-ETHMOID SPHENOIDITIS.
Temporal defect and enlarged blind spot to small visual angles on screen.
But Practically no defect to small discs on perimeter as shown by two outer fields.

The operation had made her worse, rather than better, and so she was referred to Dr. Cushing. The fields taken rather roughly in the ordinary way, had shown nothing of diagnostic value, but with greater care the visual fields showed the typical configuration due to hypophyseal enlargement and doubtless could have been detected long previously. Meningitis developed, and autopsy confirmed the diagnosis of hypophyseal struma.

During these years in Dr. Cushing's clinic, when the characteristics of hypophyseal lesions were being ever more accurately defined, it was not much more common to find that a hypophyseal case had had previous nasal operation for failure of vision than it was to find that a Gasserian ganglion case had had previous tooth extraction for pain. The incidence of this sort of thing decreased, however, after the publication of Dr. Cushing's magnificent monograph, on hypophyseal dystrophy. It was strikingly notable in Dr. Cushing's clinic, that during the earlier years there was a large proportion of cases arriving with visual defects so far advanced that quantitative perimetry was too refined and of no avail. But later on, as the knowledge of the subject became

more widely disseminated and more accurate, we began to get cases showing no characteristic changes by ordinary perimetry and only with quantitative perimetry could a characteristic field conformation be obtained. Although the situation is somewhat different with respect to post-ethmoidal disease, since the onset of visual disturbance may be very much more abrupt, nevertheless, I think the time has come when the rhinologist and ophthalmologist will resort to quantitative perimetry so quickly and accurately that the whole process of diagnosis will be greatly accelerated.

The principles and value of quantitative perimetry were demonstrated and published by Bjerrum over twenty-five years ago. Rönne, Traquair, Sinclair and others did much for the development of the subject, yet probably there are few methods of physical examination that may contribute so much information and yet are resorted to so infrequently as this method. The reason, I think, is because it is time consuming and laborious, because it requires some special apparatus, and because the ordinary perimetric examination conducted with five or ten millimeter discs, at a distance of about 25 centimeters seems to satisfy the re-

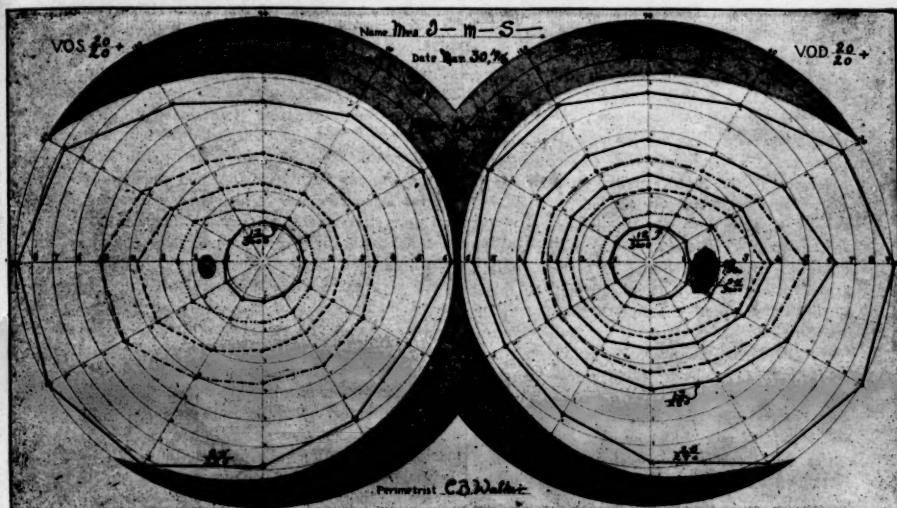


FIG. 2.—THIRTY HOURS AFTER OPERATION.
Practically normal field except for slight blind spot enlargement.

quirements in many cases, though in reality many important details may be overlooked. As a matter of fact, however, it is possible to make quantitative perimetry fairly easy, and it will throw into strong relief visual defects which are not detected by ordinary perimetric method at all. Therein should lie its great value, especially in the early cases, which the authors describe as having no lesion demonstrable in the x-ray, and very little to be seen in the nose and throat on examination. Quantitative perimetry will detect a lesion in the optic nerve of the very slightest degree either before the patient has noticed the trouble at all, or is merely complaining of a slight blur that cannot be analyzed on the ordinary perimeter.

Before citing a typical example of the visual lesion found in a condition of post-ethmoid sphenoid disease, it may be well to give here a brief outline of the principles of quantitative perimetry, with perhaps an easy method of fulfilling the major requirements with a limited apparatus, which could be used by any practitioner desiring to do more accurate work. The ordinary perimeter is built on a radius of ten to twelve inches, that is, twenty-five to

thirty centimeters. The ordinary size of the white or form test object, is five millimeters. A test object of this diameter at the distance of the ordinary perimeter subtends a visual angle at the eye of the patient situated at the center of the arc, an angle of fifty to sixty minutes, that is in the neighborhood of one degree. But since the appearance of Bjerrum's and Rönne's work, we know that this size of visual angle is ten to fifteen times too great to detect changes of a certain calibre in early cases, or in later cases certain details which would obviously therefore be overlooked in the ordinary perimetric examination. We wish therefore to use test objects subtending a visual angle of one and a half to eight minutes. If we attempt to accomplish this by reducing the size of the test object, and maintaining the same perimetric distance, we can do so, but the test object will be so very small that it will be difficult to maintain its brightness, because it readily soils, and for all patients who have refractive error or who are presbyopic, it will be necessary for them to wear their glasses in order to make correct observations. This can be done, but it is easier to use a test object of comfortable size,

that is, from one to two or three millimeters in diameter, and extend the distance of the perimeter radius, that is, use a screen instead of the perimeter. A screen is made of black velvet or other similar material (black felt or denim is a very good substitute), of about two meters square in size, before which the patient is seated at a distance of one to three meters, according to the requirement. Thus it will be seen that by varying the size of the disc, and also by varying the patient's distance from the screen, a great range of visual angles can be obtained within the limits prescribed, and a great variety of field periphery may be taken so that the complete chart of the field of vision resembles, in some respects, the ordinary contour map of the engineer. A rather elaborate apparatus can thus be constructed for these purposes; such instruments I have described elsewhere.* But the point I wish to emphasize is this, if any examiner will equip himself with such a screen and a stout wire of comfortable length on which there is fixed a one millimeter white test object, he can, by varying the distance of the patient from the screen, which may be pinned to the wall, obtain a series of visual angles ranging from one and a half to four or five minutes, which will be sufficient to detect most of the early visual changes under consideration.

The size of the disc or test object, and the distance at which it is used, must always be recorded on the chart outline. The manner of doing this, as suggested by Bjerrum, has now become standard. The disc data is recorded as a fraction, the numerator being the disc diameter in millimeters, and the denominator being the distance of screen from patient in millimeters. Thus a disc of one and two-tenths diameter used on a screen at a distance of a meter and a half from the patient, would be recorded one and two-tenths over fifteen hundred. This is merely a matter of convenience since this fraction multiplied by a constant will give the visual angle in minutes. This constant is 3437.7. Probably the most commonly used size of test object is a 1 mm. disc and 1,000 mm. distance.

The screen is marked with ten-degree circles centering on the fixation point. This may be done quickly with crayon and string. The vertical and horizontal meridians, and other

meridians at thirty degree interval may be placed with a chalk line. The first ten degree circle for a screen at 1,000 mm. distance has a radius of practically 17.5 cm. The radius of the thirty and forty degree circle may be corrected for tangential error, although even if this is not done, it will not interfere with the diagnosis, which depends a great deal more on the contour outline of the field than on its precise measurements. This is a convenient marking since the same screen may be used at 2,000 mm. without change, because the twenty degree circle becomes the ten degree circle when the distance is thus doubled. Two thousand mm. is a very convenient distance to use with a one millimeter disc, since the visual angle thus obtained gives a field extent of 25 or 30 degrees normally, and therefore falls on a screen of reasonable size, and without much error. Regular chart paper, while desirable, is not necessary, since the screen markings, as well as the field contour, can be drawn in miniature on plain paper. If the daylight illumination is not strong enough or does not come from the proper direction, one or two 100 Watt nitrogen bulbs will suffice, even at night.

The following case may serve as an illustration of the early changes that may be detected by quantitative perimetry in a case of post-ethmoid sphenoiditis. It is but rarely that one is able to apply such an examination to a case only twelve hours after the first complaint of visual disturbance. I have waited a considerable time, in hope of finding another as early, but without success.

P. B. B. H.,* Surg. No. 4462, Mrs. I. M. S. age 54. Admitted March 20, 1916. Complaint, pain in and about eyes, mostly on the right, but no complaint of visual disturbance.

Examination in O. D. D. disclosed a patient in a well developed stage of rhinitis, with probable sinus involvement, both middle turbinates much congested and bathed in purulent material more marked on the right. Pain and tenderness not definitely over the frontal or antrum, but noticeably marked deep in the nasal wall of the orbit, mostly on the right. Patient sent to the house for x-ray and treatment.

Present Illness—Patient complained of no trouble until about a month ago, when a sharp cold developed, and two weeks ago, frontal headaches began, with a profuse nasal discharge and lacrimating eyes. Condition al-

* Walker: "Quantitative Perimetry: Practical Devices and Errors," Arch. of Ophth., Vol. xlv, No. 6, 1917, p. 537.

* Case report from the Neurological Surgical Service, Peter Bent Brigham Hospital.

ways seemed a little worse on the right side, and within the last three days some puffiness of eyelids has been noticed. Past history discloses nothing of importance in relation to present condition. Physical examination disclosed a patient rather emaciated, run down and nervous, but showing no lesions of the heart, lungs, kidney or liver, or gastrointestinal system.

Treatment—The patient was anxious to avoid operation if possible, and in view of her run-down condition, shrinkage of the turbinates and application of suction to obtain sinus drainage as much as possible was instituted daily. Alkaline sprays, douches and gargles were also used.

March 24—There has been considerable improvement as regards the symptoms referable to the left side of the face and eye, but the right-sided symptoms are still present in about the same degree.

March 28—The antero-posterior x-rays have been poor on repeated trial, though showing involvement of all the sinuses except the frontal. Lateral plates show distinct ethmoid and sphenoid involvement. The turbinate on the left side of the nose have improved a good deal since admission, but on the right, the large middle turbinate is still bathed periodically with pus.

March 29—This morning the patient complained for the first time, of a slight blur in the right eye on awakening, and there was increased tenderness of the right eye-ball, and some puffiness of lids of the right eye. While none of the ocular motor nerves seem distinctly involved, there is some limitation of movement of the right eyeball, possibly the result of swollen orbital tissues.

Patient sent immediately to the perimetry room for quantitative examination. It is a question just how early the field obtained in Figure 1 really is. Since the patient has been made aware of the possibility of visual defect, and was testing her eyes separately more or less during the day, it is probable that the visual process was not over twelve hours duration in the right eye. As far as the patient could observe, the defect came over night.

In studying the character of the field shown in this chart (Fig. 1), it is noticeable that even to a small size disc on the ordinary perimeter of 28 cm. radius, that very little defect is discoverable, in a way that can be definitely measured. However, when the distance is increased, 1,000 to 3,000 mm., thereby reducing the visual angle very markedly, we obtain a picture of a considerably enlarged blind spot, and an upper temporal defect when the visual angle is 2.8 to 8.6 minutes, and when the visual angle is reduced to 1.4 minutes, that is to

the one and two-tenths millimeter disc and 3,000 mm. distance, a condition of complete hemianopia is recorded, with a definitely measurable central defect, accounting for her blurry central vision which is reduced from 20/20 to 20/40. The examination in this way disclosed to the patient how much vision was affected as compared with a little blur, and she readily consented to an immediate operation.

Under cocaine anesthesia the right agar nasi cell was opened, the anterior and posterior ethmoid cells were curetted out, also the middle turbinate was removed by the technique as outlined in the Mosher operation, a thin mucopurulent flow of material was obtained from the anterior ethmoid cells, and the posterior ethmoid cells were filled with pus and polyps. Pus and polyps were also found in sphenoid cells.

Thirty hours after I had performed this operation, the field rebounded almost to normal, as shown in Figure 2, which shows only a very slight enlargement of the blind spot. The patient made an uneven recovery, and left the hospital in excellent condition, the following week.

COMMENT.

While this case is chiefly remarkable because of the rare coincidence of obtaining a full quantitative field, at the earliest possible moment, at a time and place where immediate operation was possible, and followed by rapid recovery, also, recorded by quantitative perimetry, it is presented mostly as a very suggestive instance of what may be expected of quantitative perimetry in the more obscure type of so-called hyperplastic sphenoidalitis. It seems quite possible to me that in time it will be recognized that one of the first and most important tests to be used in cases suspected of being in this group, will be a field examination, by the quantitative method. It must be noted at present, however, that the field defect here shown could be simulated by the field obtained in numerous other conditions.

Differential diagnosis is not difficult in this case, because of the presence of active sinus suppuration, but assuming the absence of such manifestations, an ophthalmologist will note that a similar field could be found in glaucoma, in retinal disease, in many chemical toxic con-

ditions, such as quinine poisoning, lead and tobacco, amblyopia, or even the more uncertain condition of the so-called optic interstitial neuritis. On the other hand, neurologists may see in addition, many other possibilities suggested by the same field. He will consider hypophyseal disease, temporal lobe tumors, acoustic neuroma*, occipital lobe or other cerebral tumors, multiple sclerosis, syphilis and so forth.

While it is undoubtedly true at the present time, that the best and safest differentiation of these conditions can be made in a neurological clinic, it is also true that for various reasons it may be difficult to get the patient to such a clinic in the early stages, especially if the onset is rapid. At all events, if the examiner who first suspected a case of being in the group under discussion, would either take or order to be taken, a quantitative field, a decided step would be taken in the right direction towards early diagnosis, and much valuable information to all concerned would be obtained. Certainly, at present, we really have available for reference a very insufficient number of records of such examinations.

In conclusion it may be emphasized, first, that elaborate apparatus is not imperative in order to obtain the necessary data by methods of quantitative perimetry. All that is necessary is a few yards of dull black cloth, a wire handle with a millimeter white spot on the end, and second, with these simple devices quantitative records may be obtained which may contribute very materially to the diagnosis in the early stages, and finally the importance of thoroughly appreciating the fact that the usual angle of the test object must be reduced to the neighborhood of two minutes in order to detect the earliest changes.

* Dr Harvey Cushing has recently reported a most instructive case history in this group where quantitative perimetry in the first stages might have indicated a different procedure. Cushing: "Remarks on the Acoustic Neuroma and on Ethmoidal Operations for Choked Disc." Trans. Am. Laryngo, Rhino, and Otolological Soc., Inc., 1920.

Clinical Department.

TREATMENT OF FRACTURE OF NECK OF SCAPULA.

BY FREDERIC J. COTTON, M.D., BOSTON,

AND

W. J. BRICKLEY, M.D., BOSTON.

FRACTURES of the scapular neck are rare and treatment, so far as I know, not well worked out or tested.

In one previous case an attempt was made to apply the routine hereinafter described, but while the reduction worked out, the patient's indifference and impatience of restraint brought about an indifferent result.

On April 24, 1919, a case of fractured scapula presented itself in a woman of 40, who particularly needed a good result, because old arthritic changes in the hip and in the elbow of the opposite side rendered her peculiarly dependent on the arm which had been injured.

The condition present when this case was first seen is shown by Figure 1—better demonstrated by this plate than by any description.

In this case, be it noted, there was no trace of the classical picture started by Astley Cooper and perpetuated through many articles, the picture of a shoulder dropping downward, replaceable, but tending to fall away again from gravity pull.

In this case, as in the only other we have seen, there was nothing like this, but a displacement *inward* with the shoulder obviously narrower than on the other side, obviously *driven in*, and held in the abnormal position by muscle spasm.

I strongly suspect the good Sir Astley of observation "at the green table," not in the clinic, in this instance.

The patient was etherized and the deformity reduced by leverage of the humerus across

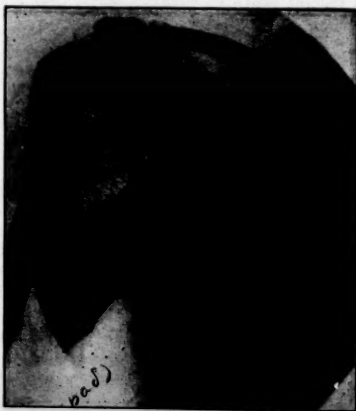


FIG. 1.—Before reduction, April 26, 1919.

the fist in the axilla as a fulcrum. Reduction was obvious.

Before she came out of the ether, a heavy wedge pad was set in the axilla, the arm was brought to the side and held with an adhesive swathe as tightly as might be without seriously checking the circulation. A pillow rolled lengthwise was strapped vertically to the middle of the upper back with adhesive, and a sandbag, loosely filled, weighing perhaps three pounds, laid on the front of the shoulder. The mattress beneath, originally too flexible, was kept flat over "bed boards."

This apparatus was kept on not quite three weeks, requiring, of course, a considerable use of hypnotics to render it even tolerable.

Then the patient was allowed up, still with the axillary pad and swathe. Massage regularly, after two weeks, and motion after three weeks brought about a recovery substantially complete within eight weeks, and absolutely complete by the end of the summer. There is no deformity, limitation of motion or weakness resulting.

The position five days after reduction is shown in Figure 2. This position was maintained throughout without apparent loss.



FIG. 2.—Five days after reduction, June 1, 1919.

The case is interesting, we think, because it demonstrated the possibility at least of a successful radical treatment of such cases and a

definite procedure by which to attempt this result in all cases of the sort.

A brief glance at literature may be worth while.

Stimson, clear headed as always, notes the slightly flattened shoulder from inward displacement and notes that unless the lower edge of the glenoid is gone there is no downward displacement.

Speed "falls for" the classical description. So, too, do Roberts and Kilby and the Oxford Surgery.

Hitzrot and Bolling (*Ann. Surg.*, 1916, Vol. 63, p. 215) report eight real cases, with results fair or better. They note that there is no displacement that can be affected by raising the arm or by traction, but despite their good results offer no special scheme of reduction or treatment.

Therefore, again we mention that for the lesion as it occurs and the displacement that really exists, the method here noted offers something definite, even though the result of one case is not conclusive as to average results.

Book Reviews.

Public Health and Hygiene. Edited by WILLIAM HALLOCK PARK, M.D. Philadelphia and New York: Lea and Febiger. 1920.

This volume on sanitation and hygiene, intended for public health officials, physicians, and medical students, deals with the most important phases of hygiene in relation to public health, presented in a practical way by specialists actually devoting themselves to the subjects treated. It comprises thirty-one systematic topical chapters by twenty-four distinguished experts, including the Editor, who is author of six chapters. Dr. Guereard contributes three chapters on evil plumbing and personal hygiene; Dr. Bowles, two chapters on water and sewage; and Dr. Boldman, two on sociologic aspects of disease and public health education. This work, in contributions by eminent authorities, should prove of great value to students and practitioners. It consists of 884 pages and is illustrated with 123 engravings.

Surgery: Its Principles and Practice. By ASTLEY PASTON COOPER ASHHURST, A.B., M.D. Second Edition, Thoroughly Revised. Philadelphia and New York: Lea and Febiger. 1920.

The first edition of this standard work for students and practitioners has been favorably reviewed in the JOURNAL. This second edition, appearing six years later, embodies a considerable amount of new matter derived from the author's experience in service with the American Expeditionary Forces, especially in the field of reconstructive surgery, gunshot wounds, infected wounds, and shock. Many new illustrations have been added, making a total of fourteen colored plates and 1129 figures in the text. The number of pages is increased from 1140 to over 1200. Of special interest are the photographs illustrating the Carrel-Dakin method of wound treatment.

Pathological Anatomy of Pneumonia Associated with Influenza. By W. G. MACCALLUM. *Johns Hopkins Hospital Reports*, 1921, xx, 149, 249.

This monograph, with the exception of a small number of pages, is given over to the description of cases and the gross and microscopical appearance of the lungs. It "is designed mainly to put on record the details of the pathological anatomy of the respiratory organs" of persons dying during the epidemic of influenza of 1918, and its recrudescence in 1920. Professor MacCallum's opinions first expressed in a report in 1919, have undergone no change as a result of this further and more minute study. This excellent pathological work is nicely illustrated with twenty-three plates. It is excellently presented in an objective way and has great value from that standpoint. The cases have been put in a rational way into four groups: those in which the pneumonia was due to the hemolytic streptococcus, the influenza bacillus, the staphylococcus, and the pneumococcus. The only lesion that was fairly common in these cases, and extremely uncommon in pneumonias produced by bacteria in ordinary times when there is no epidemic of influenza, was the great dilation of the ductuli alveolares with hyaline lining in the midst of a very fresh pneumonia.

The author draws no startling conclusions, the only one of importance being that the cause of influenza is not any known bacterium and that the rôle of the influenza bacillus is that of other secondary invaders. He is to be commended for not theorizing.

Lymphosarcoma. Lymphatic Leukemia. Leucosarcoma. Hodgkin's Disease. By L. T. WEBSTER. *Johns Hopkins Hospital Reports*, 1921, xx, 251, 314.

This report from the Department of Pathology of the Johns Hopkins University, describes particularly the pathological aspects of a series of cases of leucosarcoma, lymphosarcoma, lymphatic leukemia, and Hodgkin's disease. The author clearly indicates the distinction between these allied conditions. He considers that leucosarcoma, lymphosarcoma and lymphatic leukemia, which are lymphocytic proliferative processes, are different manifestations of the same disease, which is not in the nature of a neoplasm. He suggests that the term, "lymphadenosis, leukemic or aleukemic," would express the idea and simplify the classification until a definite etiologic agent is found. There appears no comment on the use of this term by Italian and German authors.

Hodgkin's disease, a reticulo-endothelial proliferative process, is considered as probably a distinct entity. It is rather surprising to find no reference to the work of Bunting and Yates, and no definite reference to the blood of Hodgkin's disease. It is likewise unfortunate that a careful examination of the blood is not reported upon in the cases described as lymphosarcoma. The condition termed "leucosarcoma," is excellently described, not only from four cases taken from the autopsy records of the Johns Hopkins Hospital, but also from twenty-two cases collected from the literature.

The diagnosis and prognosis of leucosarcoma, lymphosarcoma and lymphatic leukemia, is looked upon as difficult from the microscopical examination of a single gland, because of its resemblance to certain types of benign lymphadenitis. On the contrary, it is stated that Hodgkin's disease may be accurately diagnosed and prognosed from the examination of a single gland. This would appear to be because no cases are considered Hodgkin's disease unless a more definite type of pathology exists than in the other group of cases described.

At the end of the report are twelve figures illustrating the microscopical appearance (the magnification is not given) of sections of lymphglands from various conditions. Though not so stated, some of the figures are reproductions of photographs and others of drawings.

This contribution of Dr. Webster's aids to clarify the various views held regarding these obscure conditions, and is to be looked upon as a type of report which appears too seldom in the medical literature.

Current Literature Department.

ABSTRACTS.

GERARDO M. BALDONI
LAURENCE D. CHAPIN
AUSTIN W. CHEEVER
ISAADOR COMBAT
ERNEST M. DALAND
RICHARD S. EUSTIS
ROBERT M. GREEN
JOHN B. HAWES, 2d
JOHN S. HODGSON

FRED S. HOPKINS
CHARLES H. LAWRENCE
HERMAN A. OSGOOD
EDWARD H. RISLEY
WILLIAM M. SHEEDEN
GEORGE G. SMITH
JOHN B. SWIFT, JR.
WILDER TILSTON
BYSTANT D. WETHEKILL

THE PHYSIOLOGY AND PHARMACOLOGY OF THE MAMMARY GLANDS.

HENDERSON, V. E. (*The Canadian Medical Association Journal*, Vol. xi, No. 5, May, 1921) writes on this subject in detail, giving a very full bibliography. He gives a list of many drugs which may be excreted in the milk, especially iodine, bromine, salicylic acid, phenacetin, arsenic, mercury, and rhubarb.

He makes the following points which may be used clinically; apparently no drugs or gland extracts increase milk supply, while attention to the mother's diet may do so in some cases, especially the giving and proper digestion of plenty of food, particularly protein: freedom from worry and fatigue are of benefit. The mother should encourage the baby to suckle strongly and persistently, and should not worry if the milk supply is scanty for a day or two, as it usually recovers with care.

[A. W. C.]

TUMORS OF THE BONY CHEST WALL.

HENDERSON, C. A., M. D., (*Arch. of Surg.*, July, 1921) writes as follows:

Tumors of the bony chest wall are relatively rare. In 213 cases (61.4 per cent. sarcoma and 18.7 per cent. chondroma) the ribs were primarily involved in 78.7 per cent. and the sternum in 21.3 per cent.

Trauma seems to be etiologic in some cases, both with regard to incidence and to malignant degeneration of the benign forms.

Pain is the most characteristic symptom and may be present in the case of a benign as well as of a malignant tumor. Pain may be present before the tumor is recognized.

Early differential diagnosis of neoplasm and cold abscess, exostosis, aneurysm, and dermoid cyst may be difficult. Preoperative differentiation of a benign or a malignant neoplasm may be impossible.

Early radical extirpation offers the best prospect of prolonging life and of cure. Late radical or palliative extirpation, even in the presence of extensive involvement, may result in a relatively long period of freedom from recurrence.

Early explorative thoracotomy is indicated in any doubtful case.

Differential pressure anesthesia, while not essential to the successful removal of tumors involving wide opening of the pleural cavity, obviates the risk incident to sudden open pneumothorax, and by preventing a closed pneumothorax may lessen materially the occurrence of postoperative shock, pneumonia, and empyema.

Intratracheal or intrapleural anesthesia affords an effective means of preventing operative pneumothorax.

Shock, pneumonia, and empyema are the common causes of postoperative deaths.

Recurrence has been the rule in most cases of malignant tumor; but there may be freedom from

recurrence for many years and life may be further prolonged by repeated extirpation of the growth.

[E. H. R.]

PROGNOSIS OF PULMONARY TUBERCULOSIS.

HEISE, FRED H. (*The Canadian Medical Association Journal*, Vol. xi, No. 5, May, 1921) analyses three hundred incipient and moderately advanced cases, and gives several interesting charts. He finds that rales, when present at the onset of treatment, will after three to six months' treatment, tend to either increase or diminish in over half of the cases. Only comparatively infrequently do they disappear or appear when previously absent. A fair number (about one in five or six) show no change in the area of rales heard. The x-ray will show no improvement in about one of seven cases, and approximately two-thirds will show definite improvement. Nearly three-quarters of the cases will show freedom of symptoms of activity. After five to eleven years, those in whom rales increased in area while under treatment showed the highest mortality. When rales remained stationary during treatment, prognosis was not unfavorably influenced. Incipient or minimal cases have a better immediate and ultimate prognosis than the moderately advanced; moderately advanced a better prognosis than far advanced cases. Regardless of extent of lesion, the cases becoming inactive under treatment have a much better prognosis than those which retain symptoms of activity. After the lapse of twenty years, the cause of death was pulmonary tuberculosis in most of the traced cases. Those cases which were inactive after treatment have a better prognosis than those having symptoms of activity. Tubercle bacilli, when present in the sputum, make the prognosis much less favorable than when absent. This refers to longevity, general mortality and mortality from tuberculosis, and holds true for the incipient and moderately advanced cases.

[A. W. C.]

REPORT ON THE SCHICK TEST AND TOXIN-ANTITOXIN IMMUNIZATION AT THE CHILDREN'S HOME, WINNIPEG.

CHOWN, GORDON (*The Canadian Medical Association Journal*, Vol. xi, No. 5, May, 1921) reviews a group of 156 children tested; 64 of which gave a negative Schick test, of whom 11 had had diphtheria; 92 giving a positive reaction, of which 7 had had diphtheria, indicating that one attack of diphtheria does not protect absolutely against a second attack.

[A. W. C.]

CARBON MONOXIDE POISONING WITH GANGRENE.

THIRANDAVOROVAN (*Ind. Med. Gazette*, May, 1921) reports a case of gangrene due to carbon monoxide poisoning. The patient was a head constable of the Hyderabad Railway Police. He was found unconscious in a room where a charcoal stove was burning. Twenty-four hours later, he regained consciousness. Areas of hyperaemia then appeared on the left side of the face, the left hand, the left side of the chest and the left thigh. The hyperaemic areas on the face and chest disappeared after a few days, but raised and anesthetic areas appeared on the left hand and thigh. Four days later, the little finger of the left hand was found to be gangrenous, and the other three fingers and thumb almost devoid of circulation; at this time there were tingling pains in the toes of the left foot. Two weeks later, there was complete dry gangrene of the little finger, with definite line of demarcation. The other fingers recovered partially, and the swellings in the hand and thigh improved.

[L. D. C.]

SOME ACCOUNT OF THE RESPONSIBILITY OF INTENSIVE TREATMENT METHODS WITH REGARD TO THE INCIDENCE OF EARLY NEUROSYPHILIS.

FRANK, A. R. (*The American Journal of Syphilis*, Vol. v, No. 2, April, 1921) calls attention to the too frequently poor treatment of syphilis, and concludes as follows: "The responsibilities for the increasing incidence of early neurosyphilis rest with the tendency to treat primary syphilis en masse; the method of working to a mechanical time table; the blindfolded method of working to and for a negative Wassermann; failure to interpret pathological findings in the light of the clinical picture; and losing sight of the importance of the central nervous system as regards the patient's future. Modern early treatment fails in protecting the central nervous system by rapidly sterilizing the general systemic system and thus depriving the intrathecal system of its antibody supply. The nervous system is invaded coincident with the generalization of the organism. Nervous system involvement may be symptomatic or asymptomatic. In the absence of clinical signs, a normal spinal fluid may indicate the successful overcoming of the organism by the central nervous system or the failure of the nervous system to react. It may also suggest that the general systemic circulation has been successfully sterilized before the intrathecal circulation was invaded. A pathologic spinal fluid may indicate implication or protective power. In the absence of symptoms, we cannot accurately interpret the finding. For the security of the future of the patient, the invasion of the central nervous system should be taken for granted. The occurrence of neurosyphilis is influenced by the patient's powers of resistance; the natural resistance of the central nervous system and its inherent capacity for producing antibody; the stage at which treatment is inaugurated; the type of treatment employed; the period over which treatment is carried out; the type of organism responsible for the original infection. In this connection the question of a life cycle of the *Spirochete pallida* must be considered. Great importance is attached to the value of clinical opinion, clinical observation and clinical judgment. These should be correlated with careful interpretation of pathologic findings. The importance of treating each particular case on its merits and as an individual, instead of treating him as one of a series, is emphasized. Treatment should aim at conserving sufficient antibody for the requirements and protection of the central nervous system instead of defeating one's object by rapid sterilization of the systemic circulation, thereby leaving the defenceless nervous system to look after itself. Antibody supply should be conserved over a period of years. The value of intramine as a protection for the nervous tissues warrants its inclusion in any scheme of treatment." [A. W. C.]

SYPHILIS OF THE HEART.

BROOKS, HANSON (*The American Journal of Syphilis*, Vol. v, No. 2, April, 1921) takes this up in great detail in a most excellent article. His material is both clinical and post-mortem. He takes up the pathology minutely, and then from the clinical point of view states that syphilis involves the heart with great frequency, both in early and late stages, but that numerous cases of syphilis undoubtedly escape without any involvement of the heart, whatever, even on close microscopic study.

Syphilitic lesions of the heart may involve the pericardium, the myocardium, the endocardium, and the conus arteriosus, most commonly in the myocardium and about the terminals of the coronary system. A sharp distinction should be made between syphilis of the heart and the heart in syphilis, as any non-specific cardiac lesion may occur in a syph-

ilitic. Any form or stage of syphilitic lesion, except chancre, may be found in the heart. He makes the statement that most clinicians have failed to even consider syphilis of the heart when an aortitis is present, merely assuming that all the symptoms are due to that obvious lesion. Brooks feels strongly that most of the symptoms in these cases are really due, not to the aortitis, but to the concomitant syphilitic disease of the heart. He has found definite cardiac lesions in all these aortitis cases studied. He further points out that in many of these cases there is a marked improvement after anti-luetic treatment, while there can have been no mechanical improvement in the condition of the injured and scarred aorta; also the symptoms themselves are better explained by cardiac involvement in any case, especially tachycardia, arrhythmias, etc., which cannot satisfactorily be explained other wise.

Cardiac involvement may occur very early in the infection, even before the secondary rash appears, as in one case described, who at that time had a perforation of one of the aortic sinuses, due to syphilis. It may long remain quiescent and unrecognized, as is usually the case, well along into the late stages.

The diagnosis consists of: First, syphilis; and a negative history of syphilis is not to be considered, of any value; other syphilitic manifestations and scars, and a positive Wassermann test, and especially the therapeutic test, must all be used. Whenever the possibility of syphilis exists, this should be the primary assumption until it is disproved, because the earliest possible use of anti-luetic treatment is very important from the point of view of the heart lesion, when lues exist. Second, the anatomical cardiac diagnosis of the particular lesion present, calling for the usual care required by a non-specific heart case.

As to prognosis in early cases, Brooks strongly emphasizes the usual good results of prompt and energetic anti-syphilitic treatment. Late cases can be much improved, entirely relieved or perhaps cured by specific treatment. Ordinary cardiac treatment fails to give relief of the signs and symptoms of cardiac syphilis unless combined with specific medication.

The treatment is that of the syphilis, which is by far the more important, and care of the cardiac defect.

Mercury seems to be of the most value at first, iodides of very little. Cardiac stimulants should not be given until a patient has been well treated with mercury. Later, iodides are of value and after considerable mercury, arsenamine may be given very carefully. [A. W. C.]

FRACTURE OF THE SKULL.

EAGLETON, W. P., M. D. (*Arch. of Surg.*, July, 1921) states that the principles underlying treatment of fractures of the skull should be: repeated routine recording of the blood pressure, a rising blood pressure or a disproportionately increasing pulse pressure calling for immediate operation; routine examination of the eyes, the development of papillo-edema not accounted for by a vascula lesion calling for operation; immediate lumbar puncture to decide whether there is a hemorrhage within the dura or not, presence of blood in the cerebrospinal fluid making fracture probable but not calling for operation; routine neurologic examination in all cases of suspected fracture.

All wounds of the scalp should be excised, the area of excision being extended to allow of incision of the bone directly under and in the immediate vicinity of the wound. In the presence of a linear fracture the area should be excised and it should be converted into a simple fracture with primary closure. [E. H. R.]

THE BOSTON Medical and Surgical Journal

Established in 1826

THURSDAY, SEPTEMBER 15, 1921

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

For three years JAMES S. STORR, M.D.
HORACE D. ARNOLD, M.D.
CHARLES FORTESCUE, M.D.
For two years HOMER GAGE, M.D., Chairman
EDWARD O. STEVENSON, M.D.
EDWARD W. TATUM, M.D.
For one year WILLIAM H. ROSS, JR., M.D.
ROBERT I. LEE, M.D.
ROBERT B. OSOONO, M.D.

EDITORIAL STAFF.
DAVID L. EMMA, M.D.
WALTER B. CANNON, M.D.
REED HUNT, M.D.
ROBERT W. LEVETT, M.D.
EDWARD H. NICHOLS, M.D.
FRANCIS W. FRASER, M.D.
JOSEF F. SUTCLIFFE, M.D.
S. BENT WOLBACH, M.D.
GEORGE R. MIDDOT, M.D.

WALTER F. BOWEN, M.D., Managing Editor
GEORGE G. SMITH, M.D., Assistant Editor

SUBSCRIPTION TERMS: \$4.50 per year, in advance, postage paid for the United States, \$7.50 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the printer with galley proof of paper. Upon written request, authors will be furnished free one hundred eight-page reprints, without covers, or the equivalent in pages in articles of greater length.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

OPENING OF THE PUBLIC SCHOOLS.

THE present time offers an opportunity for physicians to cooperate with school and health boards, for students will present themselves in varying conditions which call for some investigation. Where real or suspected disability exists the family doctor should welcome the suggestion of the school physician for study of any case among his clientele.

Comparatively few families ask for medical inspection at stated intervals and when a given case provides the opportunity, a diplomatic, courteous lecture on the necessity of professional oversight of children with a full explanation of the dangers often encountered and the great possibility of resulting benefit will lay the foundation for the most effective type of preventive medicine. When people can be convinced that the greater importance lies in anticipating the dangers of disease and the adoption of methods which will help in the development of sturdy children, the dignity of medicine will be more generally recognized.

The problems concerning school children are twofold, affecting the individual child and also his associates, for an apparently healthy carrier may bring grave danger to groups of scholars. Every child with evidence of unhealthy mucous membranes should be submitted

to the Schick test. Before very long all children will probably be obliged to have diphtheria susceptibility determined just as vaccination is now required. Where the procedure shall have been universally adopted the mortality of diphtheria will be very much reduced. Students of this problem confidently believe that the application of present day knowledge will do for diphtheria almost as much as vaccination has done for smallpox.

We should all remember that staying home from school does not kill a child. Mingling with infected children has caused many deaths. Since school life is a necessary feature of civilization the public has a grave responsibility in eliminating every known danger incident thereto. So far as the individual child is concerned, he should not be subjected to the strain of school life as long as he has a cough, abnormal temperature or any evidence of disease which can be remedied or is a source of danger to others.

Coöperate with the school physician!

BOSTON UNIVERSITY SCHOOL OF MEDICINE IN 1921.

"In certis unitas; in dubiis libertas; in omni-bus caritas."

REORGANIZATION, which for three years has been in progress in Boston University School of Medicine, is practically completed. This does not mean that changes even in the near future may not be made. It simply means that the most radical changes made in the forty-eight years of the school's history have been brought to successful consummation. The reorganization has included the faculty, the curriculum, and the physical properties of the school.

To remove misconceptions it may be permissible as a preliminary statement to say that while Boston University School of Medicine was instituted primarily and specifically for the purpose of teaching homeopathic materia medica and therapeutics (subjects not taught elsewhere in New England), it was from the first recognized, and so taught by the late Dr. Conrad Wesselhoft for instance,—that homeopathy was not the whole of medicine, nor even the whole of pharmacotherapeutics. It was considered an exceedingly useful and even an essentially curative form of pharmacotherapy, but from the year of its foundation (1873) the school has included in its curriculum, anatomy, chemistry, surgery, medical jurisprudence, and other subjects not related to homeopathy in the remotest degree. And this has been its policy during the forty-eight years of its existence.

All who are informed realize that the medicine of today (1921) is a very different thing and covers a much wider field of science and art than was the case with the medicine of half a century ago. Then preventive medicine was

decidedly impotent. Not only smallpox, but typhoid, typhus, malaria, yellow fever, cholera, bubonic plague, trench fever, beriberi, pellagra, scurvy, rickets, and many other forms of disease are preventable, and the list should continue its beneficent growth until disease has been eradicated.

Then dietetics had not been studied radically; today it is rapidly coming into its own, therapeutically speaking.

Then surgery with its subdivisions, orthopedics, obstetrics, gynecology and the "specialties," was in its infancy; today surgery is as the crown of therapeutic arts; it is capable of "doing things" and of "getting results."

Then and for preceding centuries, pharmacotherapy was the all-in-all of medicine. For ages its popular method had been antipathic or palliative, at times injuriously so, at other times and in wise hands giving a blessed relief, as is the case today; but never directly curative. The heteropathic or empirical method has secured but few trophies during its age-long existence; and for over a century the homeopathic method, while curative in principle, and while demonstrating the uselessness of polypharmacy and the undesirability of ponderous posology, has been struggling to convince the professional world of its virtues, but as yet has not produced the convincing experimental evidence of its potency (clinical evidence being neither experimental nor convincing).

Then psychotherapy (still in nebulous form), serum-, vaccine-, immuno-, organo-, or gland-therapy, chirotherapy (osteopathy, corrective gymnastics), and calisthenics, hydro-, thermo-, and chemo-therapy, electro- and radio-therapy, were practically unheard of, but now all have their advocates and adherents, and are to be reckoned with as parts of the therapeutic field.

Then the art of diagnosis was only beginning to be what it is today, viz., the big and all-important connecting link between the therapeutic arts and the fundamental medical sciences. These sciences themselves also have made great strides during the half century under consideration.

In keeping with these briefly outlined changes in medical arts and sciences, the curriculum at Boston University School of Medicine gradually extended its scope until its horarium included 4680 or more hours. Its methods of teaching gradually changed, laboratory and clinic more or less replacing the lecture. Now, however, the curriculum has been rearranged and classified into seven departments, each with its responsible head, and each with its share of the 4000-hour schedule which has been adopted for the horarium. No essential subject has been omitted, but concentration, with logical and methodical classification, has been the order of the day. The changes, however, have been less marked in the matter of the curriculum than in the manner of present-

ing it to the student-mind. Here the laboratory and laboratory methods have come very much to the front in anatomy, histology, embryology, biological chemistry, physiology, pharmacology, bacteriology, immunology, pathology and diagnosis, while in the important departments of medicine and surgery with their subdivisions, the clinic, ward walks, and clinical clerkships, have superseded the traditional lecture in the general ratio of two to one. This is in close accord with the most approved pedagogical ideas practised by leading medical schools and upheld by recognized standardizing agencies. It is also quite in accord with the aphorism, "Science knows no creeds," and with the idealism of truth-seekers.

To accommodate much enlarged classes as well as changes in the curriculum and methods, the laboratories of the school have all been made over and new ones added. The chemical, histological and embryological, the physiological and pharmacological laboratories have been enlarged in space, equipment and general facilities by 33 to 50% so as to supply the needs of classes numbering fifty, or not over sixty. The Museum has been converted into practically a bacterio-pathological laboratory by the installation of balcony and desks for microscopical work, making an entirely new room for teaching purposes. The ready accessibility of museum preparations adds greatly to the facilities of the department.

A large lecture room has been reconstructed and converted into a commodious dissecting room, large enough for a working class of approximately sixty, and specially constructed desks have been added with exceptional illumination for the study of cross sections.

The library has been moved into a former lecture room with abundant daylight, where several large tables furnish seating and study room for about thirty students at one time. The library itself now represents a combination of the libraries of the Evans Memorial, the Main Hospital, and the School, the books, together with selected magazines and journals, being easily accessible.

The chief interest in the reorganization probably centers at this time in the personnel of the faculty and not so much in the old as in the new members. Foremost among these changes, as they are wholly new to the staff, stand three names:

Alexander S. Berg, M.D., recently Demonstrator in Anatomy and Instructor in Histology at the Harvard Medical School, and Assistant Dean of the Post-Graduate School, is to have charge of the Department of Anatomy, Histology and Embryology. His wide experience in teaching, and his acquaintance with general medical education, obtained in administrative work, coupled with his natural abilities, admirably qualify him for the duties he has been willing to assume.

Frederick Haven Pratt, A.M., M.D., formerly Professor of Physiology in the University of Buffalo and Teaching Fellow in Physiology at Harvard Medical School, author of numerous studies in muscle fibre, etc., has become the head of the Department of Physiology. Dr. Pratt retains, for the time being at least, the original staff of the department, as does Dr. Begg in Anatomy, both believing there is enough work for all, if it be done right.

Walter L. Mendenhall, M.D., from the Medical School of the University of Pennsylvania, formerly Professor of Pharmacology at the Dartmouth Medical School, has undertaken the task of building up a Department of Pharmacology on its strictly scientific side, leaving the therapeutic end chiefly with the clinician, where it belongs. His experience in laboratory experimentation, as a teacher and as a research worker, equips him well for the task. The general idea is to link pharmacology, in the limited sense, with the fundamental medical sciences, and put pharmacotherapeutics where it naturally belongs, among the medical arts.

Even the briefest résumé of the reorganization would be incomplete and unworthy that failed to recognize the broad and generous spirit of the President of the University and the Board of Trustees, without whose very practical financial support and encouragement, the present elaborate reorganization and program would have been impossible.

The courage and high idealism of the founders of the school; the hopes and faithful struggles of their immediate successors; the freedom from prejudice plus an earnest desire to grow and keep abreast of the day, which marked a later generation; the general independence and self-reliance which has marked the career of the school; and the final amalgamation with and complete adoption of the school, its ideals, traditions and ambitions, by the University, makes this year of reorganization, 1921, the beginning of its forty-ninth year, an epoch of vital importance to the school, the effects of which may radiate in unending circles.

JOHN P. SUTHERLAND, M.D.

THE USE OF TOBACCO.

P. K. HOLMES, M.D., head of the Department of Hygiene and Public Health of the University of Kentucky, claims that the effect of the use of tobacco has not been fully comprehended. While he concedes that much that has been written against the use of tobacco is unsound and exaggerated, he contends that there are indications that tobacco is definitely harmful, and cites as examples, that boys who smoke show up more poorly than those who do not and that the smoker upon giving up the habit exhibits better work; again, that an increasingly larger number of business men are getting to feel, that the use of tobacco interferes with efficiency,

at least in youths, and that the findings of the Pasteur Institute indicate that the long continued use of minute doses of any poison ultimately causes harm; further, that athletic trainers require abstinence from tobacco. College men who are users of tobacco are not so efficient as the non-smokers, for at Yale and Amherst non-users gained over the users in height, weight, chest girth, and lung capacity.

Now that the alcohol problem has been passed upon by the people in a certain way, some are turning attention to tobacco. Arguments in favor of the drug may ultimately be focused on the need of overwrought systems for some steadying influence, but it will have to be conceded that the great majority of tobacco addicts cannot claim any apparent justification for its use on this ground.

Until many more deleterious agencies and customs have been eliminated from human employment, it is quite unlikely that personal liberty will be further encroached upon by laws relating to the use of tobacco, which will go much beyond those restricting sale to youths.

It is quite generally believed that boys and girls should not use tobacco, and in all probability, the habit is acquired too early in life.

Future extension of prohibitory regulations applied to young people would probably meet with endorsement of the profession if a reasonable law could be devised.

A NEW PUBLICATION.

A SMALL pamphlet has been sold on the streets of Boston under the title "American Infant Hygiene," published as a commercial enterprise to secure coöperation of the public by publicity to help motherhood and infancy.

The owner and publisher is E. A. Gray, with an office at 285 Tremont street, Boston. The reading matter purports to have been taken from publications by the Children's Bureau, U. S. Department of Labor, The American Association for the Prevention of Infant Mortality, The United States Child Bureau, and a copy of the diet list arranged by the Boston Floating Hospital. So far as copies of meritorious articles put forth by reputable organizations are concerned, there is no ground for criticism, if one feels inclined to enter this field of journalism, but in the editorial column there is a plea for the Sheppard-Towner Bill and on the outside back cover pleas for maternity benefits.

The writer was interested to visit the house of this new venture in public health and legislative fields and found the owner of the publication was a free lance without association with organizations or individuals interested in such matters, but who had an ambition to build up a journal dealing more or less directly with health matters, with plans to employ physicians who would furnish contributions. He was

frank in his attitude toward our Spencer Bill, which he thought would not receive much endorsement in the legislature, but still was ready to present arguments for it, apparently with the expectation thereby of securing some attention to his publications.

A project of this kind, purely for the purpose of developing a publication, without proper training in the field under discussion, does not promise a brilliant career, and the proponents of the Spencer Bill will find very little valuable assistance from this source.

GROUP PRACTICE.

In a letter to the JOURNAL, Dr. Edmund B. Fitzgerald calls attention to the communication of Dr. Hugh Heaton in the *Boston Sunday Herald* of September 4th, inst., under the title of "For Medical Service."

This is a plan something after the idea worked out by Dr. Richard Cabot and his associates a few years ago, but very much more elaborate.

The plan may be best explained by quotations from the letter: "A commercial organization composed exclusively of medical graduates furnishing a definite grade of medical service (the best) for a definite sum per head per year. The organization must gain favor with the public solely by services rendered. Within the organization every doctor will be kept on a battling average, broadly based, and his advancement would depend on his abilities to make sick people well.

"District offices would be established about the city and adjacent country, in charge of a general practitioner who would have an assistant and district nurses to aid in doing the general medical practice of the district. There would be a central general hospital to which all patients needing hospital or special attention would be sent.

"The medical staff would rotate in duties somewhat in this manner: One year as an assistant district physician, one year as an interne in the hospital, five years as a general practitioner in a district, then in the hospital as a medical officer. At this point, if he so desired, and was qualified, he could take up a specialty and be given every opportunity to perfect himself in it, but every sixth year hereafter he would spend as a general practitioner in a district. Likewise those who elect to remain in general practice would spend one year in six in hospital work.

"This kind of medical service, unlimited in scope, embracing all types of medical care, would not need to exceed \$5 per year per head, and if applied over a large proportion of the population, would be much less.

"We would have in this plan all the practical elements of preventive medicine and medical research."

Theoretically, such combinations are promising, but practically, how could one or two or three men be found who could and would build up an organization of this type? It has taken years for the best endowed and highly trained minds to perfect such organizations and there are only a comparatively few in existence. The element of jealousy would be apt to wreck such organizations, unless dominated by minds with all the essential qualities of leadership, and only those with scientific spirit would be attracted to an organization of this character and the necessary elements of discipline would tend to develop lack of cooperation and cohesion in the organization. A few entirely fair-minded men might attract such groups of workers, but not very generally. Existing hospital organizations attract too many of this type of workers.

In closing, Dr. Heaton says that "Well people cannot be induced to submit to regular physical examinations," and later, "Who ever saw a man who took unusual care of his health who was worth a damn to the community?"

Many will dissent from these views because it is common knowledge that many people now have general investigations of the body as age creeps on, and many hard workers are especially careful of the bodily functions. Dr. Fitzgerald asks for a general discussion of Dr. Heaton's views.

MEDICAL NOTES.

THE NATIONAL BOARD OF MEDICAL EXAMINERS has just completed the first five years' work and with it the trial period of its usefulness. The principle which the Board has stood for, namely, the establishment of a thorough test of fitness to practice medicine which might safely be accepted throughout this country and abroad, has been widely accepted. Since this Board was organized by Dr. W. L. Rodman, in 1915, eleven examinations have been held. These examinations have been conducted on the plan of holding at one sitting, a written, practical and clinical test for candidates with certain qualifications, namely, a four-year high-school course, two years of college work, including one year of physics, chemistry, and biology, graduation from a Class A medical school and one year's internship in an acceptable hospital. These examinations have covered all the subjects of the medical school curriculum and have been conducted by members of the Board with members of the profession, resident in the place of examination appointed to help them. Such examinations have been held in Washington, Philadelphia, New York City, Boston, Chicago, St. Louis, Rochester (Minnesota), and Minneapolis. During the war a combined examination was held at Fort Oglethorpe and Fort Riley. There have been 325 candidates examined, of whom 269 have passed and been granted certificates.

Starting with the endorsement of the Council on Medical Education of the American Medical Association, American Medical College Association and various sectional medical societies, the recognition of the Army, Navy, and Public Health Service Medical Corps of the United States and certain State Boards of Medical Examiners, the certificate is now recognized. Also by twenty states as follows: Alabama, Arizona, Colorado, Delaware, Florida, Georgia, Idaho, Iowa, Kentucky, Maryland, Minnesota, Nebraska, New Hampshire, New Jersey, North Carolina, North Dakota, Pennsylvania, Rhode Island, Vermont, and Virginia; the Conjoint Board of England, the Triple Qualification Board of Scotland, the American College of Surgeons and the Mayo Foundation of the University of Minnesota.

There has been such a widespread demand for an opportunity to secure this certificate by examination that the Board has now adopted and will put into effect at once, the following plan: Part I, to consist of a written examination in the six fundamental medical sciences: anatomy, including histology and embryology; physiology; physiological chemistry; general pathology; bacteriology; materia medica and pharmacology. Part II, to consist of a written examination in the four following subjects: medicine, including pediatrics; neuropsychiatry, and therapeutics; surgery, including applied anatomy, surgical pathology and surgical specialties; obstetrics and gynecology; public health, including hygiene and medical jurisprudence. Part III, to consist of a practical examination in each of the following four subjects: clinical medicine, including medical pathology, applied physiology, clinical chemistry, clinical microscopy and dermatology; clinical surgery, including applied anatomy, surgical pathology, operative surgery, and the surgical specialties of the diseases of the eye, ear, nose and throat; obstetrics and gynecology; public health, including sanitary bacteriology and the communicable diseases.

Parts I and II will be conducted as written examinations in Class A medical schools and Part III will be entirely practical and clinical. In order to facilitate the carrying out of Part III, subsidiary boards will be appointed in the following cities: Boston, New York, Philadelphia, Minneapolis, Iowa City, San Francisco, Denver, New Orleans, Baltimore, Galveston, Cleveland, St. Louis, Chicago, Washington, D. C., and Nashville, and these boards will function under the direction of the National Board. The fee of \$25 for the first part, \$25 for the second part, and \$50 for the third part will be charged. In order to help the Board the Carnegie Foundation has appropriated \$100,000 over a period of five years.

At the annual meeting held June 13th, of this year, in Boston, the following officers were elected: M. W. Ireland, Surgeon General,

President; J. S. Rodman, M.D., Secretary-Treasurer; E. S. Elwood, Managing Director.

Mr. Elwood will personally visit all Class A schools during the college year to further explain the examination, etc., to those interested. Further information may be had from the Secretary-Treasurer, Medical Arts Building, Philadelphia.

THE SEVENTY-FIFTH ANNIVERSARY of Ether Day will occur at the Massachusetts General Hospital October 18 at three o'clock P. M., in association with the centennial of the Hospital. Short addresses will be made by Dr. Henry P. Walcott, Major General Merritte W. Ireland, U. S. A., Dr. Frederick C. Shattuck, Dr. Harvey Cushing and Dr. C. Macfie Campbell.

Miscellany.

THE NEW ENGLAND SURGICAL SOCIETY.

THE NEW ENGLAND SURGICAL SOCIETY will meet in Worcester, Massachusetts, September 21 and 22, 1921.

In addition to the President's address, papers will be read under the following titles:

1. Dr. Charles Mixer of Boston: "Surgical Aspects of Intra-abdominal Tuberculosis in Infancy and Childhood."
2. Dr. James S. Stone of Boston: "Intussusception—Clinical Manifestations."
3. Dr. Frederic V. Hunsey of Providence: "Acute Intussusception—Surgical Treatment and Report of Cases."
4. Dr. Daniel P. O'Brien of New Bedford, Mass.: "Local Anesthesia Plus Drug Narcosis in Major Surgery."
5. Dr. John De J. Pemberton of the Mayo Clinic (guest): "The Goutre Problem."
6. Dr. J. H. Means of Boston (guest): "The Application of the Studies of Metabolism in Practice."
7. Dr. John M. Birnle of Springfield, Mass.: "Cæsarean Section."
8. Dr. John H. Cunningham of Boston: "The Treatment of Carcinoma of the Prostate." Will show lantern slides.
9. Dr. J. Dellinger Barney of Boston: "Recurrent Renal Calculi." With lantern slides.
10. Dr. Arthur H. Crooble of Boston: "Observations on Some Unusual Kidney Conditions."
11. Dr. Ralph French of Fall River, Mass.: "Diver-ticulitis."
12. Dr. D. F. Jones of Boston: "Acute Pancreatitis."
13. Dr. John T. Bottomley of Boston: "Infections of the Biliary Passages."
14. Dr. Franklin W. White of Boston (guest): "The Value of Medical Biliary Drainage for Diagnosis and Treatment of Diseases of the Gall-Bladder and Bile Ducts."
15. Dr. Henry C. Tinkham of Burlington, Vt.: "Artero-mesenteric Obstruction of the Duodenum."

16. Dr. Edward R. Lamson of Hartford, Conn.: "Gastrojejunal Ulcers."
17. Dr. David Cheever of Boston: "The Physiological and Pathological Basis for the Surgical Treatment of Chronic Gastric and Duodenal Ulcer."
18. Dr. Jason Mixer of Boston: "Lesions of the Spinal Cord and Results after Operative Treatment."
19. Dr. George C. Wilkins of Manchester, N. H.: "Experiences with the Use of Radium."
20. Dr. Frank Lahey of Boston: Title to be announced later.

The dinner will be an important feature of the meeting.

Correspondence.

CRITICISM OF THE OFFICERS OF THE SOCIETY.

Mr. Editor:—

I have read with interest the letter of Dr. Paul Goldsberry of Degrifield, Mass., in your issue of August 25, and in reply would like to say I take decided exception to his statements that there is any lack of physicians today in Massachusetts, notwithstanding that in Berkshire County there are fifteen out of thirty-six towns without a physician.

It is a notorious fact that all the cities of this State and every other state are overburdened with physicians, at least one-third of whom are not making a living.

This is also true of the larger towns. The writer knows of a town of six thousand inhabitants, four thousand of whom are Roman Catholic in religion, which has at present three Protestant and two Catholic physicians, and recently a young married physician, a Protestant, has decided to settle in this place, now already overtaxed with physicians. This town could easily be served by four physicians. Why add two more, when they seem to be needed so much somewhere else?

It is absurd to call it a question of supply. It is a question rather of distribution and always will be, until the problems surrounding the practice of medicine in these smaller centers are solved. On the other hand, I most cordially endorse his statement that "the medical profession has never been organized and unified sufficiently to promote and conserve its soundest interests." "No coordinating head and management and no field agents to relate sectional and individual interests."

The difficulty has been that the officers and largely the committees controlling the affairs of the Massachusetts Medical Society have had their heads, and still have them, in the clouds. To interest themselves in the material welfare of the average members of the society would be beneath their dignity as leaders of such a philanthropic body as the Massachusetts Medical Society, hence, they become, as Dr. Goldsberry characterizes them, "a weak skein of connection" between the members and the State at large, which is continually "tinkering with the independence, individuality and efficiency of the medical profession." Is it any wonder, then, that "the time is critical"?

What is the solution of this problem? It is evident that the larger part of the men who control the affairs of the Massachusetts Medical Society are not in sympathy with the criticisms which have appeared from time to time within a year, on the management of the affairs of this organization in the BOSTON MEDICAL AND SURGICAL JOURNAL.

If they were approached personally, they would doubtlessly answer that the Massachusetts Medical Society is not a labor union and cannot function as such; that it is a scientific body and must work along these lines. Well and good, we have our answer; we know where we stand. Is not the time ripe to organize a medical club, whose purpose shall be to en-

guard the material interests of the medical profession throughout the state and frankly pose as such?

In Worcester there are six or more independent medical clubs. "The Brookfield Medical Club," taking in the physicians of the towns of Charlton, Leicester, Spencer, the four Brookfields, Warren, Ware and Palmer, with the neighboring towns included, Springfield, with its Academy of Medicine, and similar organizations throughout the state, with no ancient creed or traditions to hamper them, could easily unite and have what Dr. Goldsberry says the profession has not, "a coordinating head and management, field agents to relate sectional and individual opinions and interests."

This kind of an organization would not be a weak skein of connection as he charges the present organization to be, but a powerful body whose influence would be felt for the good of us all, in our halls of legislation, even to the every-day affair of fees and their collection. Start the ball a-rolling, Brother Goldsberry, and we will all follow you.

J. G. MURPHY.

[In view of this letter and other previous expressions, the JOURNAL would respectfully suggest that members of the Society who feel aggrieved should try to secure representation in the Council and have all suggestions put into specific complaints with a motion for corrective measures. If matters of importance ought to be considered before other Councilors could be elected, a letter to the President or Secretary with specific recommendation would probably be submitted to the Council for action. It often happens that officers of a society do not know all of the opportunities for serving its members, but yet are anxious to discharge obligations in full measure. The President visits each district for the purpose of ascertaining local problems and it is believed will welcome suggestions for improvements. The next Council meeting will take place the first week in October.—Editor]

MUTUAL INSURANCE.

Mr. Editor:—

In response to an invitation to discuss the feasibility or desirability of forming a mutual insurance company for members of the Massachusetts Medical Society, permit me to say a few words.

Between group insurance and mutual insurance—give us, by all means, the latter.

It stands to reason that in a mutual company, where high salaries of "experts" are tabooed, where profits are eliminated, the actual insurance to the members will be at cost. Granted that, owing to lack of experience, the first few years will cost the members a few dollars more a year, it will be worth it to the members, because of the enormous savings they will make in the years to come.

I am not familiar with the actual statistics of claims arising from alleged malpractice among the members of the Massachusetts Medical Society. Judging, however, from the daily newspapers, which eagerly record such "news," such claims are quite rare, and in the most cases, perhaps nine out of ten, are rejected by the courts.

With an attorney, already employed for defending members of the Massachusetts Medical Society in alleged malpractice cases, there would not be much additional expense in carrying out the insurance of members.

If Mr. Crosbie is able to offer us this insurance for an average annual fee of \$20.00, a part of which must necessarily go to the support of expensive officers, experts, lawyers and stockholders, why should we not pay these \$20 into a mutual company and see if, at the end of the year, we would not be able to return to the members composing it a dividend of 25% to 50%, or even more. There are mutual companies that achieve such results, why not we, the enlightened physicians of Massachusetts? DR. M. J. KONTKOW.